Evaluation of the District of Columbia Healthy Schools Act

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Table of Contents

Overview

This report presents the findings of an evaluation of the District of Columbia Healthy Schools Act of 2010 (HSA; D.C. Law 18-0209), including trends in schools' compliance with the HSA over time and relationships between various school characteristics (e.g., school economic status, school sector, ward, etc.) and HSA compliance. The report also examines relationships between compliance with the HSA and student outcomes including: academic performance, health knowledge, and attendance. In addition, the report summarizes the results of a survey that was administered to school staff in spring 2016 to better understand school staff perceptions of the HSA, their experiences with the HSA in their own schools, and how they perceive the implementation supports that are offered by the Office of the State Superintendent of Education (OSSE). The report concludes with suggestions of ways to strengthen the Healthy Schools Act and to increase schools' compliance.

Key Findings

- Compliance with the HSA improved between the 2012-13 and 2014-15 school years, although most schools saw a sharp decline in compliance in the 2015-16 school year.
- In general, public charter schools had higher compliance scores than District of Columbia Public Schools (DCPS); their staff also tended to report more positive perceptions of the HSA than DCPS staff.
- Schools with very low and very high levels of poverty among the student body were more compliant with the HSA than schools with mid-range poverty levels.
- Most schools struggled to comply with the health education and physical education requirements set out in the HSA, which increased dramatically in 2014-15.
- School staff who participated in our survey generally did not feel well-informed when it comes to OSSE's expectations for schools.
- Although school staff who participated in our survey saw OSSE as a source of relevant and timely information about HSA-related resources, they viewed HSA funding as insufficient and noted that some of the requirements were burdensome.
- Overall, schools' compliance with the HSA was not associated with students' health knowledge, academic performance in math or English language arts, or attendance.
- Having a school garden was associated with higher levels of nutrition knowledge.

Key Recommendations

1. Refine the HSA to strengthen alignment with accumulating evidence about school health policies and practices that are effective in improving student outcomes
2. Ensure that the HSA represents a balance of incentives, penalties, and supports that represents the District of Columbia's priorities for improving student outcomes.
3. Establish an HSA coordinator at each school.
4. Work with schools to identify and address barriers to using HSA-related grants to improve compliance with Physical Education minute requirements
5. Continue to invest in school gardens and disseminate evidence-informed best practices to help schools leverage gardens to promote health and academic outcomes.
6. Offer trainings on implementation science to ensure that schools are able to select health-related interventions that meet the needs of their students and staff and implement them well.
7. Encourage schools to collect and analyze student health data.
8. Work with schools to revise the School Health Profiles to accurately measure school compliance with the HSA and school performance with respect to student health outcomes.
9. Create opportunities for peer-to-peer learning so that schools can share lessons learned and work collaboratively to improve student health across the District of Columbia.

The Healthy Schools Act: A Response to Childhood Obesity in the District of Columbia

High prevalence of obesity among children and youth

Nationwide, the prevalence of childhood obesity has increased dramatically over the past few decades. While obesity rates among children in the District of Columbia have fallen in recent years, they remain higher than the national average (See Figure 1). Given the well-documented adverse consequences of childhood obesity on children's physical health and the emerging evidence suggesting childhood obesity detrimentally influences children's socioemotional development and has cascading effects on health in adolescence and adulthood, the high rates of childhood obesity in the District are of special concern.[1]

The Centers for Disease Control and Prevention (CDC) define **obesity** as above the 95th percentile body mass index (BMI)-for-age and **overweight** as between the 85th and 94th percentile.

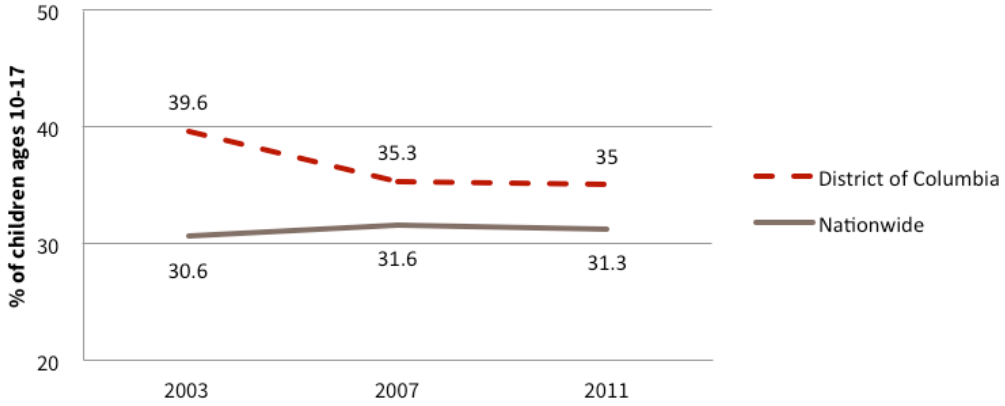
A role for schools in reducing obesity among children and youth

In recognition of the severity of these consequences, researchers have worked to identify risk and protective factors related to the likelihood of children becoming obese. While it is well-documented that child and family characteristics play a strong role in childhood obesity, there is growing recognition that factors within schools also play a key role. In fact, research suggests that after accounting for the influence of child and family factors, schools account for 27 percent of the variance in childhood overweight/obesity.[2]

[1] Source: National Survey of Children's Health
[2] Boonpleng, W., Park, C. G., Gallo, A. M., Corte, C., McCreary, L., & Bergren, M. D. (2013). Ecological Influences of Early Childhood Obesity A Multilevel Analysis. Western Journal of Nursing Research, 35(6), 742-759.

The good news is that there is also a growing body of evidence that health-related programming in schools can positively influence student health. Several studies of school-based health interventions have found that interventions targeting physical activity and healthy eating were related to improvements in student health and decreases in obesity[3] In addition, there is evidence that efforts to promote health in schools are also associated with improved academic performance.[4]

Figure 1. Rates of childhood obesity and overweight



Source: National Survey of Children's Health

DC enacts Healthy Schools Act to address childhood overweight and obesity in schools

In an effort to address the high rates of childhood overweight and obesity in the District of Columbia, the DC Council passed the Healthy Schools Act (D.C. Law 18-0209) in 2010. The Healthy Schools Act (HSA) outlines requirements related to promotion of student health and wellness. The passage of the HSA placed the District of Columbia in the vanguard of formalizing student health promotion in schools. In the 2011-12 school year, the District of Columbia also became the first jurisdiction to mandate that students' health knowledge be assessed along with math and language arts.[5]

Below is a summary of the requirements of the HSA,[6] some of which pertain to schools directly and some of which are directed to government agencies such as the Office of the State Superintendent of Education (OSSE), District of Columbia Public Schools (DCPS), and other District of Columbia government agencies.

Nutrition. The Act outlined nutrition requirements (some of which exceeded the federal standards at the time) related to fat and sodium content, as well as servings of vegetables, fruits, whole grains, and milk. Nutrition requirements apply to foods made available to students through vending machines, fundraisers, snacks, after-school meals, and school stores, or offered as incentives or prizes. Schools that do not comply with the nutrition requirements may be fined up to $500 per day after an initial warning has been issued. For schools where more than 40 percent of students qualify for free or reduced-price meals, the HSA requires that breakfast be offered in classrooms or through accessible methods like grab-and-go carts. Schools must also engage with multiple stakeholders to ensure they are serving nutritious meals that appeal to students; allow at least 30 minutes for students to eat lunch; and make cold, filtered water available free to students. Food service providers are required to distribute information about menu items including: nutrition content, ingredients, and where and how fruits and vegetables were grown. The HSA also directs DCPS to establish a central kitchen. (This requirement is not addressed in the current evaluation, which focuses on school-level health practices.)

[3] Singh, A., Uijtdewilligen, L., Twisk, J. W., Van Mechelen, W., & Chinapaw, M. J. (2012). Physical activity and performance at school: a systematic review of the literature including a methodological quality assessment. *Archives of pediatrics & adolescent medicine, 166*(1), 49-55; Haapala, E. A. (2013).

[4] Pucher, K. K., Boot, N. M. W. M., & De Vries, N. K. (2013). Systematic review: school health promotion interventions targeting physical activity and nutrition can improve academic performance in primary-and middle school children. *Health Education, 113*(5), 372-391.

[5] Turque, B. (2011, September 14). D.C. students to be tested on sex education. *Washington Post*. Retrieved October 4, 2016 from: www.washingtonpost.com

[6] Healthy Schools Act of 2010 DC Law 18-209, § 38-821.01(2010). Retrieved October 6, 2016 from: http://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/Healthy%20Schools%20Act%20as%20Amended%2020121231%20%282%29.pdf

Farm-to-school. The HSA directs schools to serve locally grown, locally processed and unprocessed foods from growers that use sustainable agriculture practices when possible. The HSA also requires that OSSE collaborate with local stakeholders to develop programs that promote the benefits of purchasing and eating locally grown foods from growers engaged in sustainable agricultural practices.

Physical and health education. The HSA encourages schools to promote physical activity, with a goal that students engage in 60 minutes of physical activity each day. More specifically, the HSA required an increasing number of minutes of physical education (PE) instruction for students in kindergarten through grade 8, with at least 50 percent of that time dedicated to moderate-to-vigorous physical activity (see Table 1). Similarly, the HSA required an increasing number of minutes of health education (see Table 1). Physical education and health education must meet curricular standards adopted by the State Board of Education. No requirements for physical education or health education are outlined for high schools. The HSA also prohibits schools from requiring or withholding physical activity as a means of punishment and requires schools to offer suitable adapted physical education for students with disabilities. Finally, the HSA requires that OSSE report on student achievement with respect to health and physical education standards on an annual basis.

Table 1. Required minutes of PE and health instruction under the HSA over time

	Grades K-5	Grades 6-8
Physical education		
Before 2014-15	30 minutes	45 minutes
After 2014-15	150 minutes	225 minutes
Health education		
Before 2014-15	15 minutes	15 minutes
After 2014-15	75 minutes	75 minutes

Environment. There are no school-level requirements related to the environment in the HSA. Rather, most of the requirements are directed at public agencies, including the District Department of the Environment, the Department of General Services, the Public Charter School Board, DCPS, and OSSE to enact recycling programs and to develop an environmental literacy plan which should include relevant standards, professional development opportunities for teachers, and a strategy to measure environmental literacy. The HSA also directs OSSE to establish a School Gardens Program that seeks to establish gardens as integral components of public schools and public charter schools, collect data on the location and types of school gardens, provide support to schools in establishing and maintaining gardens, coordinating curricula for school gardens and related projects, and assisting schools in receiving certification as U.S. Department of Education Green Ribbon Schools. The HSA also states that newly constructed and substantially improved public schools in the District shall aspire to meet LEED for Schools certification at the Gold level or higher.

Health and wellness. Most requirements related to health and wellness in the HSA are directed at Local Education Agencies (LEAs). For example, the HSA requires each LEA to comply with federal requirements related to the development and adoption of a comprehensive local wellness policy that addresses environmental sustainability, the use of locally-grown, locally-processed and unprocessed foods from growers with sustainable agriculture practices, and increasing physical activity. The HSA stipulates that local wellness policies should be revised at least every three years and that OSSE should review each policy for compliance. Individual schools are held responsible for disseminating the local wellness policy to specified stakeholder groups. The Act also requires that each school submit an annual School Health Profile on or before February 15 to OSSE and that the profile should document information about: health

programs, nutrition programs, physical and health education, and wellness policies. The HSA also requires District agencies to develop a plan to establish and operate school health centers in public schools and public charter schools. The Act also requires the Mayor's Office to develop standard health certificates that must be submitted on behalf of all students prior to the first day of the school year or the date of the student's enrollment in the school.

Healthy Youth and Schools Commission. The HSA established a Healthy Youth and Schools Commission with the purpose of advising the Mayor and the City Council on health, wellness, and nutrition issues concerning youth and schools in the District. The Commission is required to submit an annual report to the Mayor and the Council on or before November 30 that explains the efforts made in the previous year to improve the health, wellness and nutrition of youth and schools; discusses steps that other states have taken to address the health, wellness and nutrition of youth and schools; and recommends steps for improving the health, wellness, and nutrition of youth and schools.

Healthy Schools Fund. The HSA also established a Healthy Schools Fund, with an annual budget of approximately $4.2 million, to be used by OSSE to support schools' compliance with the HSA. In particular, the HSA directs OSSE to use the fund to reimburse schools for meals that meet the nutrition requirements of the act; provide resources to implement the breakfast-in-the-classroom program; incentivize the use of local foods; and establish competitive grants that seek to increase physical activity (DC PAY grant) and support school gardens (School Garden grant).

A Preliminary Evaluation of the First Five Years

A report published in January 2016 provided an initial look at trends in implementation over the first five years of the HSA and an exploration of relationships between the HSA and student outcomes.[7] Looking at data from the 2010-11 school year through the 2014-15 school year, the researchers found that schools were generally meeting the nutrition requirements of the HSA. They also found that the minutes of physical education instruction—but not health education instruction—increased over time; although most schools did not meet the increased minute requirements for either health or physical education instruction that took effect in 2014-15. The study also noted that average academic performance appeared higher each year among schools that were above the 75th percentile in their compliance with the HSA compared to schools that were less compliant. While these analyses did not take other school characteristics into account that might also affect student outcomes, such as the average economic status of students attending the school or the location of the school, they do suggest a need to further explore the association between implementation of the HSA and student outcomes.

An Overview of the Current Evaluation

The evaluation described in this report builds upon the previous evaluation and advances our understanding of how schools in the District might influence student outcomes through an emphasis on promoting well-being in a number of ways:

- Rigorous statistical methods were employed that account for school characteristics that might also be related to student health and academic outcomes.
- A compliance index that assesses schools' self-reported compliance with the ***letter of the law*** allows for an examination of the association between the Healthy Schools Act itself and student outcomes. Additional analyses that include health-related policies and practices not addressed in the law provide useful information about how schools can meet the ***spirit of the law*** (i.e., effectively promote student health and well-being through strategies like offering mental health services or establishing a school garden).
- Trends in compliance for the two years following the increased requirements for health and physical education

[7] Watts, E., Snelling, A., Irvine-Belson, S., Van Dyke, H., Malloy, E., & Ghamarian, Y. (2016). The Healthy Schools Act of 2010: Building Healthy School Environments. American University: Washington, DC.

instruction that took effect in the 2014-15 school year allow for an **exploration of an incremental approach to policy change.**

- Survey and interview **data from school staff** provide useful information for understanding the context within which schools are working to comply with the HSA.

The current evaluation explores trends in compliance over time and identifies school characteristics associated with compliance. The evaluation also examines relationships between schools' compliance with the requirements of the Healthy Schools Act and student outcomes. In particular, the evaluation was guided by the following questions:

1. How has compliance with the HSA changed over time?
2. Is HSA implementation associated with student health knowledge or academic performance?
3. What are state-level opportunities to improve school health environments in the District of Columbia?

For more information about the specific methods used in this evaluation, see the Methods section.

Organization of the Report

The findings of this evaluation are presented in three stand-alone briefs that address the primary research questions listed above:

1. *Evaluation of the District of Columbia Healthy Schools Act: Descriptive Trends in Compliance Over Time*
2. *Evaluation of the District of Columbia Healthy Schools Act: Health Knowledge and Academic Outcomes Over Time*
3. *Evaluation of the District of Columbia Healthy Schools Act: School Staff Perceptions of the Healthy Schools Act*

In addition to these research briefs, the report also includes a detailed description of the study methods as well as a summary of the evaluation findings and recommendations for OSSE.

Evaluation Methods

In order to understand how schools have implemented the HSA since it went into effect in August 2010, we examined longitudinal administrative data from traditional public schools and public charter schools in the District of Columbia. We also collected and analyzed data from school staff in order to better understand their experiences with implementation of the HSA. This section describes the methods used to conduct the evaluation, the findings of which are reported in chapters 3, 4, and 5.

This section is divided into three sub-sections:

1. Development of the HSA Compliance Index
2. Analyses of secondary data to explore trends in HSA Compliance scores over time and associations with student outcomes
3. Analyses of primary data, to explore school staff experiences with the HSA

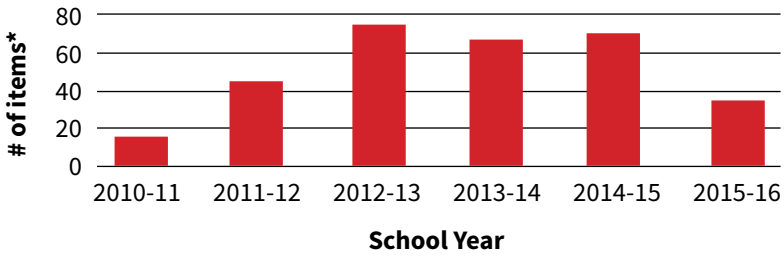
HSA Compliance Index

A key component of examining the relationship between changes in Healthy Schools Act implementation and the outcomes of interest is the ability to compare schools' compliance with the HSA across time. This section describes the development of the HSA Compliance Index.

Development

We developed a rubric for assessing compliance that includes items from the School Health Profiles that are directly related to requirements of schools under the Healthy Schools Act. To develop the rubric, we initially examined items from OSSE's School Health Profiles (SHP)—completed annually by all traditional and public charter schools operating in the District of Columbia—for school year 2010-11 through school year 2015-16. Because the number of items in the SHP varied widely over the years (see Figure 1), the HSA Compliance Index was based on items included in school years 2012-13 through 2014-15 that were directly related to requirements of the Act ("letter of the law"). Each relevant item response was coded for compliance with the HSA requirements. In most cases, this was based on a school's response to a single

Figure 1. Items in School Health Profile



*The number of items may not match the number of questions in the School Health Profiles as some questions have multiple components and each component represents one item.

item on the SHP. For others, such as requirements around the percentage of physical education minutes dedicated to activity, an indicator score was calculated based on multiple items. Calculation details are described below.

Because the HSA established different requirements for elementary schools, middle schools, and high schools, the annual SHPs collect different information by grade level (see Table 1). Most notably, there were fewer HSA requirements for high schools related to physical education and health education, and therefore fewer indicators included in the HSA Compliance Index computed for those grades. In addition, the number of index indicators also changed in 2015-16, when several items were dropped from the SHP (see Table 1). As a result, the HSA Compliance Index consists of 30 indicators for elementary and middle schools in 2012-13 through 2014-15, and 20 indicators in 2015-16; for high schools, the index consists of 24 indicators in 2012-13 through 2014-15, and 16 indicators in 2015-16.

Table 1. Healthy Schools Act Compliance Index

HSA Compliance Index indicator	Elem. school	Middle school	High school	2012-13	2013-14	2014-15	2015-16
School promotes physical activity through active recess	■	■		■	■	■	■
School promotes physical activity through afterschool activities	■	■	■	■	■	■	■
School promotes physical activity through movement in the classroom	■	■	■	■	■	■	■
School promotes physical activity through athletic programs	■	■	■	■	■	■	■
School promotes physical activity through walk- or bike-to-school initiatives	■	■	■	■	■	■	■
School promotes physical activity through safe routes to school	■	■	■	■	■	■	■
School meets required weekly minutes of physical education instruction	■	■		■	■	■	■
More than 50% of time in physical education course is devoted to activity	■	■		■	■	■	■
Physical education instruction based on OSSE's physical education standards	■	■		■	■	■	
School meets required weekly minutes of health education for all grades	■	■		■	■	■	■
Health education instruction is based on OSSE's health education standards	■	■		■	■	■	
School serves breakfast	■	■	■	■	■	■	
School serves breakfast in the classroom (if percent of students receiving FRPL > 40%)	■			■	■	■	
School serves breakfast at grab-and-go carts (if percent of students receiving FRPL > 40%)		■	■	■	■	■	
School meals meet federal and district standards	■	■	■	■	■	■	
Lunch period is 30 minutes or longer	■	■	■	■	■	■	

Table 1 Cont. Healthy Schools Act Compliance Index

HSA Compliance Index indicator	Elem. school	Middle school	High school	2012-13	2013-14	2014-15	2015-16
School serves locally grown/processed foods at breakfast and/or lunch							
Cold, filtered water is available to students							
Items in school vending machines available to students comply with HSA							
School posts the school breakfast and lunch menu (in school cafeteria, school main office, and/or online)							
School posts information about the local wellness policy (in school cafeteria, school main office, and/or online)							
School posts information about the nutritional ingredients for each menu item (in school cafeteria, school main office, and/or online)							
School posts information about the ingredients for each menu item (in school cafeteria, school main office, and/or online)							
School posts information about the source and growing practices for fruits and vegetables (in school cafeteria, school main office, and/or online)							
School informs students and parents about the availability of vegetarian food options							
School distributes information about the local wellness policy to the school PTO							
School distributes information about the local wellness policy to the wellness committee							
School distributes information about the local wellness policy to food service staff							
School distributes information about the local wellness policy to administrators							
School distributes information about the local wellness policy to students							
School is currently implementing the corresponding LEA's local wellness policy							
Total possible items: Elementary school				30	30	30	20
Total possible items: Middle school				30	30	30	20
Total possible items: High school				24	24	24	16

HSA compliance indicators

The grade configurations of schools vary widely. For example, schools that serve grades K-8 are more common than schools that serve only middle school students (grades 6 to 8). Because the HSA requirements vary by grade level, in order to assign a single HSA compliance score to each school, the following coding steps and decision rules were employed.

Physical and health education indicators

Physical education minutes

HSA requirement:[1]

- Grades K to 5 standard:
  2010-11 through 2013-14 school years—30 minutes per week
  2014-15 through 2015-16 school years—150 minutes per week
- Grades 6 to 8 standard:
  2010-11 through 2013-14 school years—45 minutes per week
  2014-15 through 2015-16 school years—225 minutes per week
- Grades 9 to 12: no standard

Scoring: The indicator for physical education minutes was coded "1" (compliant) if the reported time that students in all grades spent in physical education instruction met the grade-level requirement for the year, and "0" (not compliant) if not all grades met the standard. The indicator was coded as "missing" for schools that did not complete the SHP item, and for schools serving only grades 9 through 12 (for which there is no physical education requirement). We coded the PE instruction compliance variable by first looking at the grades in which the school had students enrolled, and identified whether the school should be held to the K-5 standard, the 6-8 standard, or both. We then coded the indicator for whether the school met the standard by looking at the number of minutes of instruction reported by the school. Schools that served K-5 and 6-8 had to meet the standard for both grade levels in order to be judged as meeting the standard. The relevant question on the survey asked schools to identify the number of minutes "within the physical education course" devoted to "actual physical activity." We checked that the number of minutes of physical activity did not exceed the number of minutes of PE instruction. For three schools where the minutes of PE instruction devoted to physical activity exceeded the number of minutes of PE instruction, we recoded the number of minutes of PE instruction to be equal to the number of minutes of PE instruction devoted to physical activity. We did not find any additional problems with the data.[2]

Percent of physical education devoted to physical activity

HSA requirement: More than 50 percent of time that students spend in physical education is devoted to physical activity (elementary and middle school).

Scoring: The percent of physical education devoted to physical activity was calculated by dividing the minutes reported in the item "indicate the average number of minutes per week during the regular instructional school week devoted to actual physical activity within the physical education course" by the minutes reported in the item asking schools to "indicate the average number of minutes per week during the regular instructional school week that a student receives physical education instruction." We verified that the data entered were within expected ranges. We then coded the final indicator as "1" for cases in which all grades spent 50 percent or more of physical education

[1] In HSA SHP forms through 2014-15, schools reported the average number of minutes per week by grade; in 2015-16, this question asked schools to report the average number of minutes per week for two grade spans—grades K-5 and grades 6-8—rather than for each individual grade.
[2] This differs from analyses conducted by OSSE and reported in the *District of Columbia Healthy Schools Act of 2010 2016 Reports*, which excluded from analyses schools reporting more than 225 minutes (K-5) or 300 minutes (6-8) of physical education.

minutes per week on physical activity during the year, and "0" for schools that did not. We coded the indicator for a school as "missing" if the school was missing data for either the physical education instruction or activity items, and for schools serving only grades 9 through 12.

Health education minutes

HSA requirement:[3]

- Grades K to 8 standard:
  2010-11 through 2013-14 school years—15 minutes per week
  2014-15 through 2015-16 school years—75 minutes per week
- Grades 9 to 12: no standard

Scoring: The indicator was coded "1" if the time schools reported that students in all grades spent in health education met the grade-level requirement for the year, and "0" if not. The indicator was coded as "missing" for schools that did not complete the item, and for schools serving only grades 9 through 12. We verified that the data entered were within expected ranges.[4]

Additional health and physical education items

HSA requirement:

All schools were required to adhere to the following standards:

- Health education instruction is based on OSSE's health education standards.
- Physical education instruction is based on OSSE's physical education standards.
- Promote physical activity during or outside of regular school hours through:
  1. Active recess
  2. Movement in the classroom
  3. Walk or bike to school
  4. After school activities
  5. Athletic programs
  6. Safe routes to school

Scoring: These indicators were coded as "1" for "Yes" responses to the items on the SHP, "0" for "No" responses, and "missing" for missing responses.

Nutrition indicators

School breakfast

HSA elementary school requirement: Schools serving student populations where more than 40 percent of students received free or reduced-price lunch should make breakfast available to students in the classroom.

Scoring: We coded this indicator as "1" for schools meeting all of the following conditions:

- More than 40 percent of students qualified for FRPL.
- The school included any grade between Kindergarten and grade 5.
- The school served breakfast in the classroom.

We coded the indicator as "0" if the school met the first two conditions but did not serve breakfast in the classroom. We coded the indicator as "missing" if the school did not meet the first condition or any of the required data were missing.

[3] HSA SHP forms through 2014-15, schools reported the average number of minutes per week by grade; in 2015-16, this question asked schools to report the average number of minutes per week for two grade spans—grades K-5 and grades 6-8—rather than for each individual grade.
[4] This differs from analyses conducted by OSSE and reported in the *District of Columbia Healthy Schools Act of 2010 2016 Reports*, which excluded from analyses schools reporting more than 125 minutes of health education.

HSA middle and high school requirement: Schools serving student populations in which more than 40 percent of students received FRPL should make breakfast available to students from a grab-and-go cart.

Scoring: We coded this indicator as "1" for schools meeting all of the following conditions:
- More than 40 percent of students qualified for FRPL.
- The school included any grade between grade 6 and grade 12.
- The school served breakfast from a grab-and-go cart.

We coded the indicator as "0" if the school met the first two conditions but did not serve breakfast from a grab-and-go cart. We coded the indicator as "missing" if the school did not meet the first condition or any of the required data were missing.

School lunch time

HSA requirement: Lunch period is 30 minutes or longer.

Scoring: We coded the indicator as "1" for each year in which the school indicated that the lunch period was 30 minutes or longer and "0" if the school indicated that the lunch period was shorter than 30 minutes. If there was no recorded response from a school in a year, the indicator was coded as "missing" for that year.

Locally grown and processed foods

HSA requirement: School served locally grown and processed foods at breakfast and/or lunch.

Scoring: This indicator collapses responses from two items—one asking whether locally grown and processed food was served at breakfast, and the second asking if locally grown and processed food was served at lunch. We coded the "breakfast or lunch" indicator as "1" for each year in which the school indicated that they served locally grown and processed foods at breakfast or lunch. We coded the indicator as "0" if, in a given year, the school responded that they did not serve locally grown and processed food at either breakfast or at lunch, or if the school indicated that they did not serve locally grown or processed food at one of the two meals, and data were missing for the other meal. If there was no recorded response from a school to either the breakfast or lunch items for a year, the indicator was coded as "missing" for that year.

School menu distributed

HSA requirement: School makes information about menus for breakfast and lunch available.

Scoring: This indicator collapses responses on items referring to four possible ways a school could have distributed the menu for breakfast and lunch—the school website, the school main office, the school cafeteria or eating areas, or "other." We coded the "menu distributed" indicator as "1" if the school indicated that it distributed information through any of the four options. We coded the indicator as "0" if the school selected the "This information is not available" response option. We coded the indicator as "missing" if the school did not select any of the possible options.

Nutrition information distributed

HSA requirement: School makes information about the nutritional content for each menu item available.

Scoring: This indicator collapses responses to items referring to four possible ways a school could have distributed the menu for breakfast and lunch—the school website, the school main office, the school cafeteria or eating areas, or "other." We coded the "nutrition information distributed" indicator as "1" if the school indicated that it distributed information through any of the four options. We coded the item as "0" if the school selected the "This information is not available" response option. We coded the variable as "missing" if the school did not select any of the possible options.

Ingredient information distributed

HSA requirement: School makes information about the ingredients for each menu item available.

Scoring: This indicator collapses responses on items referring to four possible ways a school could have distributed the menu for breakfast and lunch—the school website, the school main office, the school cafeteria or eating areas, or "other." We coded the "ingredient information distributed" indicator as "1" if the school indicated that it distributed information through any of the four options. We coded the item as "0" if the school selected the "This information is not available" response option. We coded the indicator as "missing" if the school did not select any of the possible options.

Vegetarian food options

HSA requirement: School made information about vegetarian food options at the school available to parents and students.

Scoring: This indicator collapses responses on items referring to four possible ways a school could have distributed the menu for breakfast and lunch—the school website, the school main office, the school cafeteria or eating areas, or "other." We coded the "vegetarian food options" indicator as "1" if the school indicated that it distributed information through any of the four options. We coded the indicator as "0" if the school selected the "This information is not available" response option. We coded the indicator as "missing" if the school did not select any of the possible options.

Vending machines

HSA requirement: All items in vending machines available to students comply with the Healthy Schools Act.

Scoring: We first identified schools that did not have vending machines available to students. The indicator was set to "missing" for those schools. In schools that did have a vending machine available to students, the indicator was set to "1" if schools responded that all items in the vending machines complied with HSA and "0" if they responded that they did not.

Cold filtered water

HSA requirement: Cold, filtered water available for students.

Scoring: This indicator was constructed as a Yes/No response item. We coded this indicator as "1" for "Yes" responses, and "0" for "No" responses, and "missing" for missing responses.

Local wellness policy

Local wellness policy distributed - methods

HSA requirement: School makes information about their LEA's local wellness policy available.

Scoring: This indicator collapses responses to items referring to four possible ways a school could have distributed the local wellness policy—the school website, the school main office, the school cafeteria or eating areas, or "other." We coded the "local wellness policy" indicator as "1" if the school indicated that they distributed information through any of the four options. We coded the indicator as "0" if the school selected the "This information is not available" response option. We coded the indicator as "missing" if the school did not select any of the possible options.

Local wellness policy distributed to stakeholder groups

HSA requirement: Schools distribute the local wellness policy to specified stakeholder groups (see scoring description for details).

Scoring: Each of the following indicators had Yes/No response options and were coded as "1" for "Yes" responses and "0" for "No" responses and "missing" for missing responses.

- School distributed their LEA's local wellness policy to the school's Parent Teacher Organization.
- School distributed their LEA's local wellness policy to the school's Wellness Committee/Council.
- School distributed their LEA's local wellness policy to the school's food service staff.
- School distributed their LEA's local wellness policy to the school's administrators.
- School distributed their LEA's local wellness policy to the school's students.
- School implemented their LEA's local wellness policy.

HSA Compliance Index: Scoring

We determined the HSA Compliance Index score for each school in each year by calculating the mean of the constituent indicators, using the number of indicators with non-missing data as the denominator.[5] We took this approach because it does not penalize schools with missing data by assuming that a missing value is equivalent to "0," as would be the case for a calculation that used a denominator reflecting all possible questions that could have been answered. For instance, a hypothetical school has data for 13 indicators in a given year—8 "Yes" (1) responses and 5 "No" (0) responses. Our approach uses 13 as the denominator for the index score calculation. This enables the calculation of an index score, regardless of the reason for the missing data. Data could be missing because an item did not apply to that school level, or because an item wasn't asked in that year. Alternatively, missing data could reflect an implicit "No" or an accidental oversight where the school's answer would have been "Yes," or a database problem (i.e., the school answered the question but the answer did not make it into the final data file due to a technical issue). This approach maximizes the number of schools that are assigned an HSA implementation index score. We found no distinct patterns for missing data when we examined the data by school characteristics. This suggests that missing data were missing at random.

[5] This calculation was done using the egen row mean function in Stata.

Methods for analysis of secondary data

This section describes the methods used to analyze the secondary data in order to document trends in HSA compliance over time and to examine relationships between Healthy Schools Act compliance and school characteristics, as well as student outcomes of interest.

Sample

Our sample included all public schools in the District of Columbia that were in operation in school year 2012-13 through school year 2014-15 and had School Health Profile and school characteristics data for all years.[6]

Table 2. School characteristics

	2012-13	2013-14	2014-15
Total Schools (n)	155	182	194
Public Charter Schools (%)	39%	46%	47%
Direct Certified (%)	49%	48%	48%
English Learners (%)	9%	8%	8%
Special Education (%)	13%	13%	13%
Average Enrollment	378	389	398
Grade configuration			
Elementary K-5	49%	51%	51%
Elementary/Middle K-8	26%	23%	24%
Middle K-8	8%	8%	8%
Middle/High 6-12	4%	4%	5%
High 9-12	14%	13%	12%
Ward			
1	11%	10%	10%
2	5%	4%	5%
3	6%	5%	5%
4	17%	16%	16%
5	12%	14%	15%
6	15%	16%	14%
7	14%	15%	15%
8	19%	19%	19%
HSA Compliance Index score	73%	79%	78%
Health Knowledge (% correct)			
5th grade	64%	65%	-
8th grade	64%	68%	-
High School	62%	66%	-

[6] Although SHP data were available for the 2015-16 school year, they were not used for outcome analyses as no outcomes data were available at the time of analysis.

Table 2 Cont. School characteristics

	2012-13	2013-14	2014-15
Reading Proficiency (%)			
Elementary	48%	48%	46%
Middle	52%	52%	45%
High	48%	52%	45%
Math Proficiency (%)			
Elementary	49%	51%	51%
Middle	59%	59%	40%
High	49%	55%	34%
In-seat Attendance (%)			
Elementary	94%	94%	94%
Middle	91%	91%	91%
High	85%	86%	85%
Truancy (%)			
Elementary	16%	14%	20%
Middle	20%	16%	29%
High	38%	39%	48%

Data sources

For school demographic characteristics and the HSA Compliance Index scores (based on Healthy Schools Act School Health Profiles for school years 2012-13, 2013-14, and 2014-15 as submitted to OSSE), we relied on administrative data files provided by OSSE for all public schools in the District; school-level student outcomes, including DC Comprehensive Assessment System (CAS) scores for school years 2012-13 and 2013-14; and Partnership for Assessment of Readiness for College and Careers (PARCC) scores for school year 2014-15. Attendance records for school years 2012-13 through 2014-15 were also provided by OSSE.

Variables

Table 3 provides a description of the variables that were used in analyses of HSA compliance and student outcomes.

Table 3. Administrative data from OSSE

Variables		Description
School demographic characteristics	English Learners (EL)	Percent of students in a school that qualify for English language learner services. Schools were divided into quartiles based on their percentage of EL students.
	Special Education (SPED)	Percentage of students in a school that qualify for Special Education (SPED) services. Schools were divided into quartiles based on their percentage of SPED students.
	Direct Certified	Percentage of students in a school who are eligible for TANF/SNAP benefits, are involved with the child welfare system, or who are homeless.
	School economic status	This variable is based on the Direct Certified variable. Schools were divided into quartiles based on the proportion of students in the school who met the qualifications for Direct Certified. The first quartile includes schools with the highest economic status (lowest proportion of students who met the qualifications for Direct Certified), and the fourth quartile represents those with the lowest economic status.
	Enrollment	Total number of students enrolled in a school.
	Grades served	Grades that are served in a school. Categories include K-5, K-8, 6-8, 6-12, and 9-12.
	Sector	Whether a school is a District of Columbia Public School (DCPS) or a public charter school.
	Ward	Ward of the city in which the school is located.
HSA Compliance Index		An index score based on items from the Healthy Schools Act School Health Profiles that are directly related to requirements of the HSA.
School Health Policies and Practices		Self-reported items from the Healthy Schools Act School Health Profiles: • Type of nurse coverage at the school (full-time or part-time). • School has full-time mental health staff. • School has part-time mental health staff. • School employs one or more health education teachers. • School employs one or more physical education teachers. • School includes health education in courses outside of the health education course. • School has a garden.
Health knowledge		The average percent of items that were answered correctly by students in a school on the DC Comprehensive Assessment System (CAS) Health and Physical Education Assessment.

Table 3 Cont. Administrative data from OSSE

Variables	Description
Math proficiency	The percentage of students in a school that score at or above the proficient level in math, based on either the DC Comprehensive Assessment System (CAS) scores for school years 2012-13 and 2013-14, or Partnership for Assessment of Readiness for College and Careers (PARCC) scores for school year 2014-15.
Reading proficiency	The percentage of students in a school that score at or above the proficient level in reading, based on either the DC Comprehensive Assessment System (CAS) scores for school years 2012-13 and 2013-14, or Partnership for Assessment of Readiness for College and Careers (PARCC) scores for school year 2014-15.
Average in-seat attendance	In-seat attendance is the number of days a student is present divided by the number of days a student is enrolled.
Average percentage of students truant from school	The percentage of students who have accumulated more than 10 unexcused absences in a school year.

Analyses

Our analyses aimed to answer three overarching research questions:

RQ1) How has compliance with the Healthy Schools Act changed over time? Are there specific indicators that have shown more or less change?

RQ2) How is HSA compliance related to school-level characteristics (e.g. ward, sector, poverty)?

RQ3) How is HSA compliance associated with student-level outcomes (health knowledge, reading and math proficiency, attendance and truancy)? Are other indicators, not specified in the HSA, related to student-level outcomes?

To answer these questions, we first conducted descriptive analyses for each year for each indicator in the HSA Compliance Index (Appendix A), as well as for the overall index (RQ1), and school-level characteristics as included in the regression analyses described below (see Table 2). Next, we used Generalized Estimating Equations (GEE) for our analysis of schools' HSA compliance; student health, PE, and nutrition knowledge; and school-level truancy rate and in-seat attendance rate.

HSA Compliance over time (RQ1)

In order to explore changes in compliance with the HSA over time, we conducted descriptive analyses for each year for each indicator making up the HSA Compliance Index (Appendix A), as well as for the overall index.

HSA Compliance by School Characteristics (RQ2)

In order to estimate the association between school demographic characteristics and schools' compliance with the Healthy Schools Act, we used a Generalized Estimating Equations (GEE) model, appropriate for longitudinal data with a fractional response outcome, such as rate of compliance. We used this method in keeping with recommendations from Papke and Wooldridge (2008) and others.[7] The model uses robust standard errors, and

[7] Papke, L.E. and Wooldridge, J.M., (2008). Panel data methods for fractional response variables with an application to test pass rates. *Journal of Econometrics, 145*, 121-123.

accounts for within-school and cross-year dependence. The model included several school-level demographic variables determined to have some theoretical association with a school's ability to implement the requirements of the HSA. These variables included enrollment (log transformed); economic status (percentage of students Direct Certified (quartiles)); percent English learners (quartiles); percent special education (quartiles); sector (DCPS or public charter); school structure (serve K-5, serve 6-8, serve 9-12); ward; and year.

Below is the final model:

> Index score$_{it}$ = constant + school economic status quartile + school enrollment + school EL quartile + school special education quartile + school sector + grades served + year

To interpret the GEE model, we ran post-estimation margins and contrasts to understand the effects of the significant predictors.

> Proportion of HSA indicators in compliance= constant + index_score + school poverty quartile + school enrollment + school ELL quartile + school special education quartile + school sector + year

Student Outcomes (RQ3)

GEE models were used to predict the following student outcomes aggregated to the school level: health knowledge, reading proficiency, math proficiency, in-seat attendance, and truancy.

Each model used the same covariates, which were identified a priori to have theoretical associations with each outcome. These covariates included enrollment (log transformed); economic status (percentage of students Direct Certified (quartiles)); percent English learners (quartiles); percent special education (quartiles); sector (DCPS or public charter); school structure (serve K-5, serve 6-8, serve 9-12); ward; and year. Covariates that were highly collinear were omitted.

A series of three models was conducted for each outcome. First, we predicted the outcome based only on the HSA compliance index. Then, we added to the model the covariates listed above. Finally, we added to the model other health-related practice indicators that are not requirements of the HSA. To be considered for inclusion, indicators had to have consistent measurement across each of the three years of SHP used in the model. The final indicators were as follows: school has a part-time nurse; school has a full-time nurse; school has part-time mental health staff; school has full-time mental health staff; school has a health educator on staff; health education is included across subjects; and school has a garden.

Thus, the final model is as follows:

> Aggregated student outcome = index_score + nurse_parttime + nurse_fulltime + mhstaff_parttime + mhstaff_fulltime + healtheducator + integratedhealthed + garden + school economic status quartile + school enrollment + school EL quartile + school special education quartile + school sector + school structure + year + constant

For analyses exploring student health knowledge, we additionally explored the association between overall compliance with the HSA and overall health knowledge. We also explored whether compliance on sub-indices for physical education, nutrition, and health education (see Exhibit 1) were associated with students' physical education and nutrition knowledge.

Outcome variables were calculated as follows. For student health knowledge, we used the proportion of all items students in all grades answered correctly on the DC CAS Health. To construct the overall proportion of correct items at schools serving a single grade or any combination of the three tested grades (5th, 8th, and 11th), we created a weighted proportion within each objective—to account for the different numbers of test takers in each grade—and then calculated the row mean of the weighted proportions across all objectives.

Because most schools saw a decline in proficiency during the first year of PARCC administration, we enhanced comparability by transforming DC CAS and PARCC math and reading scores to z-scores. Truancy and in-seat attendance rates were used in their raw forms, as described above.

Methods for Analysis of Primary Data

This section describes the methods for collecting and analyzing the primary data from school staff, OSSE staff, and members of the Healthy Youth and Schools Commission. The results of these analyses are summarized in Chapter 5 of this report: *Evaluation of the District of Columbia Healthy Schools Act: School Staff Perceptions of the Healthy Schools Act.*

Sample Selection

Quantitative data

Quantitative data from school staff were collected via an online survey. An invitation was distributed to schools on May 18 and June 1, 2016 via OSSE's *LEA Look Forward*, a weekly digest that is distributed to all LEAs in the District of Columbia. A total of 58 respondents, representing 49 schools, submitted a complete survey. One respondent indicated a role as a central office staff for a charter school; since the responses could not be associated with a particular school, that respondent was dropped from analyses. Among the 49 schools represented in the sample, six submitted surveys from multiple respondents. For schools with multiple respondents, one respondent was selected from each school to be included in the final sample.[8] Ultimately, the analytic sample for the staff survey was made up of 49 staff members. While responses represent approximately 20 percent of schools, the distribution by sector and level closely mirror the distribution of schools in the District of Columbia as a whole (see Table 4 for a summary of sample characteristics). Of note, while OSSE records indicate that 57 percent of schools received at least one HSA-related grant in 2015-16, only one third of survey respondents indicated that their school was a grant recipient.

Exhibit 1. Healthy Schools Act Compliance Sub-Indices

Physical Education (9 items)
- School promotes physical activity through:
  - Active recess*
  - After school activities
  - Movement in the classroom
  - Athletic programs
  - Walk or bike to school initiatives
  - Safe routes to school
- School met requirement for minutes of PE instruction per week*
- More than 50 percent of time in physical education course devoted to activity*
- PE is based on OSSE's physical education requirements*

Nutrition (12 items)
- School served breakfast
- School served breakfast in the classroom (ES)/at grab-and-go cart (MS, HS) [if 40 percent or more of students at the school qualified for FRPL]
- Lunch period was 30 minutes or longer
- School served locally grown and processed foods at breakfast and/or lunch
- School made information available about:
  - Breakfast and lunch menus
  - Nutritional content for menu items
  - Ingredients for menu items
  - Source of fruits and vegetables
  - Vegetarian food options
  - Local wellness policy
- Cold, filtered water was available
- Items in school vending machine complied with HSA requirements

Health Education (2 items)
- School met the requirements for minutes of health education per week*
- Health education instruction is based on OSSE's health education standards

* K-8 grades only

[8] To select the respondent to be included in the final sample, respondents from each of the six schools were assigned priorities based on the number of skipped survey items and their position at the school. Those with the most completed survey items were given priority, followed by those working in administrative positions. If two or more respondents from one school were tied based on these criteria, one was randomly selected to be included in the analytic sample.

Qualitative data

The final question in the staff survey asked respondents whether they would be willing to be contacted by Child Trends staff about participating in a brief phone interview to expand on their survey responses. Thirteen respondents indicated a willingness to be contacted and were redirected to a brief form in which they were asked to provide contact information including their name, phone number, email address, and the best time to reach them. Participants were emailed a consent form prior to the interviews, and verbal consent was obtained during the call. Staff were offered school supplies as a token of appreciation for their participation in the interviews.

Ten respondents were successfully contacted, three respondents provided nonworking email addresses, and five staff ultimately participated in an interview. Telephone interview participants held a range of different positions in their schools, which were a mix of public (n=2) and public charter school (n=3), as well as elementary (n=3), middle (n=1), and middle/high schools (n=1).

Two focus groups were also conducted, one with OSSE staff members who work on initiatives related to the HSA, and one with members of the Healthy Youth and Schools Commission (HYSC). Recruitment and scheduling for these focus groups was conducted by OSSE. Prior to the focus groups, participants were informed of the study and their written consent was obtained. A total of eight OSSE staff members who work on Healthy Schools Act-related initiatives, and five members of the Healthy Youth and Schools Commission, participated in the focus groups.

Table 4. Characteristics of survey sample (n=49)

Characteristic number (percent)	Survey sample	All DC schools
Sector		
DCPS	27 (55.1%)	53%
Public charter	22 (44.9%)	47%
Level		
Elementary	20 (45.5%)	45%
Middle	7 (15.9%)	9%
High	6 (13.6%)	15%
Elementary + Middle	8 (18.2%)	28%
Middle + High	2 (4.6%)	3%
Alternative	1 (2.3%)	-
Role		
Administrator	26 (53.1%)	N/A
Health or PE instructor	14 (28.6%)	N/A
Other instructional role	9 (18.4%)	N/A
OSSE HSA-related grant funding		
Received grant	18 (36.7%)	57%
Did not receive grant	8 (16.3%)	43%
Not sure	23 (46.9%)	-

Data collection

Quantitative data

The school staff survey consisted of 30 questions that asked respondents about their background and experiences with the Healthy Schools Act. Background information included the respondent's role, the school where they work, their understanding of whether their school was a current recipient of HSA-related grants, and the HSA-related activities in which they were directly involved. Respondents were asked to provide information on their experiences with and perceptions of the HSA via three sets of questions focusing on their personal experiences with the HSA, their perceptions of how the HSA is implemented at their school, and their perceptions of the support that OSSE provides schools to implement the HSA. Responses for these sets of questions were measured on a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Respondents were also asked to indicate which programs or practices were successfully incorporated into their school as a result of the HSA, and what topics they would like to see expanded in the HSA (see Appendix B for the full survey).

Qualitative data

Qualitative data were collected through survey questions, telephone interviews, and focus group conversations. The online survey included three open-ended questions asking respondents to describe their understanding of the HSA, their experiences with implementing the HSA, and potential areas for improvement of the HSA. The telephone interviews conducted with school staff lasted about 15 to 30 minutes each and mainly focused on the participant's role at school and in implementing the HSA, their school's role in implementing the HSA, and OSSE's role in supporting implementation of the HSA (see Appendix C for the full protocol). A trained Child Trends staff member conducted each interview and a research assistant served as note-taker. Interviews were also audio-recorded.

Likewise, each focus group had one facilitator and one note-taker (see Appendices D and E for the full protocols). The focus groups were audio-recorded and lasted between 90 and 120 minutes. The main topic discussed in the focus groups was the role that OSSE and the Healthy Youth and Schools Commission play in supporting implementation of the HSA. Focus group participants also discussed their schools' roles in implementation of the HSA, overall implementation of the HSA, and successes thus far and opportunities for improvement in implementation.

Data analysis

Quantitative data

Quantitative data from the staff survey were analyzed using Stata 13.[9] Respondents were assigned one of three broad roles (administrative, health or PE teacher, and other instructor) based on their stated title. We conducted confirmatory factor analysis and found that the three sets of questions exhibited strong internal consistency, and scales were generated for each to examine the underlying construct that each scale captured (i.e., perceptions of the HSA, experiences with HSA implementation in schools, and perceptions of OSSE support for HSA implementation). Additionally, three indices were generated by summing HSA-related programs, activities, or policies with which respondents reported being directly involved; HSA-related programs, activities, or policies in which their school participated; and the total recommendations they made for improving the HSA. Descriptive statistics included frequencies for each response category. Correlations between variables were examined using bivariate linear or logistic regressions, with the respondent's school sector (charter or DCPS), school's HSA grant receipt status, and respondent role serving as the main independent variables of interest. Relationships with a p-value of $\leq$.05 were considered significant. The three scales and three indices, as well as the individual items therein, served as the dependent variables in regression analyses. Logistic regression was used for binary dependent variables (i.e., individual items making up the three indices), while linear regression was used for dependent variables that were discrete (i.e., scores for the three indices or the Likert items making up the three scales) or continuous (i.e., scores for the three scales). The scales and indices, plus the items composing them, are presented in Tables 5 and 6 below.

Because a large proportion of respondents selected the neutral response option throughout the survey, we examined the responses of these respondents in more detail to better understand how those responses could be interpreted. In order to do this, we followed a three-step process. First, we identified the individuals with a neutral response for each survey question. Second, we reviewed these individuals' responses to two open-ended survey questions about their overall experiences with the HSA, and classified responses within six categories:

- positive,
- negative,
- a mixed response that included both positive and negative aspects (e.g., "It's a great idea in theory, but its full implementation amongst schools will be a very long and tedious ordeal."),
- neutral,
- indication that respondent lacked information, and
- no comment.

[9] StataCorp. (2013). Stata Statistical Software: Release 13. College Station, TX: StataCorp LP.

Third, to provide additional context for the neutral survey responses, we reviewed the proportion of comments to the open-ended questions that fell into the five categories described above. We excluded the "no comment" responses, which constituted the majority, and focused on the responses that fell into the other five categories. For some items, there was no discernable pattern, as respondents that selected the neutral response option offered a range of perspectives in the open-ended comments about their overall experiences with the HSA. For other items, however, a clearer pattern emerged, with most comments falling into one of the five categories.

Table 5. Staff experiences with the Healthy Schools Act: Scales and constituent items

Staff's personal understanding of and preparation for implementing the Healthy Schools Act
• I have a clear understanding of what is covered in the Healthy Schools Act.
• I have a clear understanding of how the Healthy Schools Act affects my responsibilities in my current role.
• I have the skills necessary to implement the Healthy Schools Act in my current role.
• I have the knowledge necessary to implement the Healthy Schools Act in my current role.
• I have received adequate training to implement the Healthy Schools Act in my current role.
• I have received adequate on-the-job support to implement the Healthy Schools Act in my current role.
• I have adequate time to implement the Healthy Schools Act in my current role.
• I have adequate resources to implement the Healthy Schools Act in my current role.
Cronbach's alpha: 0.94
Staff's perceptions of their school's implementation of the Healthy Schools Act
• At my school, members of the school leadership are actively involved in Healthy Schools Act implementation.
• At my school, we take a team approach to Healthy Schools Act implementation.
• At my school, we have a plan to implement the Healthy Schools Act that is tailored to our particular needs.
• The Healthy Schools Act is well-aligned with my school's mission.
• At my school, we have adequate funds to implement the Healthy Schools Act.
Cronbach's alpha: 0.86
Staff's perceptions of OSSE's support for implementation of the Healthy Schools Act
• OSSE's expectations for Healthy Schools Act implementation in schools are clear.
• OSSE provides adequate training for schools to implement the Healthy Schools Act.
• OSSE provides clear and timely information about relevant resources, such as trainings or funding opportunities, to support schools.
• OSSE distributes Healthy Schools Act-related resources to schools in a fair and consistent manner.
• OSSE facilitates networking among schools to promote better Healthy Schools Act implementation.
• OSSE provides schools with feedback on Healthy Schools Act implementation that is useful for assessing priorities.
• OSSE provides schools with feedback on Healthy Schools Act implementation that is useful for making improvements.
• The Healthy Schools Act School Health Profiles collected by OSSE provide actionable data that is valued by teachers.
Cronbach's alpha: 0.97

Table 6. Reported Healthy Schools Act-related activities, processes, and programs: Indices[10]

Staff is directly involved in the following Healthy Schools Act-related activities.
• Environmental Literacy Leadership Cadre
• Farm-to-School
• Growing Healthy Schools Month
• Healthy Schools Act Booklist
• Healthy Youth and Schools Commission Subcommittees
• Strawberries and Salad Greens Day
• Wellness Council
• Other
Processes and programs that have been successfully incorporated into staff's school due to Healthy Schools Act
• Environmental Literacy Leadership Cadre
• Farm-to-School
• Growing Healthy Schools Month
• Healthy Schools Act Booklist
• Healthy Youth and Schools Commission Subcommittees
• Strawberries and Salad Greens Day
• Wellness Council
• Other
Topics that staff would like to see included or expanded in the Healthy Schools Act
• Environmental health
• Green cleaning
• Mental health
• School climate
• Other

Qualitative data

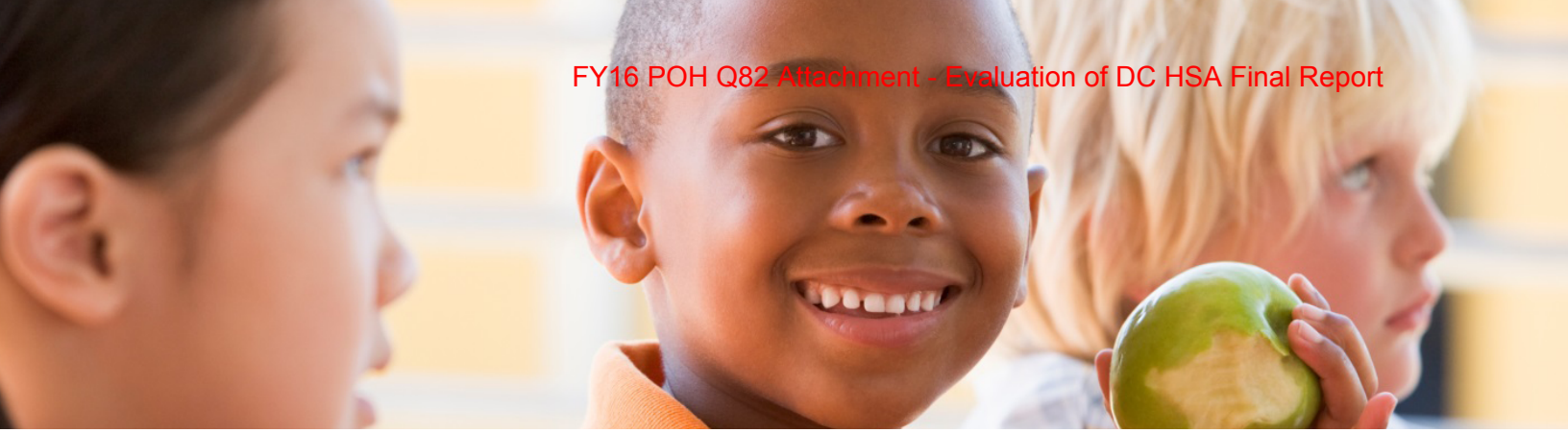
Notes from the two focus groups (with OSSE staff and members of the Healthy Youth and Schools Commission), and all staff phone interviews were imported into NVivo 10 software,[11] along with a spreadsheet that included all responses from the staff surveys. All qualitative data were coded according to a set of rules determined *a priori*. Broadly, these categories included attitudes towards the HSA, experiences with implementation of the HSA in their schools, and OSSE support for implementing the HSA, as well as codes that indicated whether a comment seemed positive or negative. Child Trends analyzed the text to draw out themes and common attitudes related to the HSA and its implementation (see Appendix F for a list of codes that were developed). Additionally, queries were run with respondents as the unit of analysis, to calculate the frequency of particular themes.

[10] The survey questions these indices were derived from allowed respondents to select multiple options, and also provided an option for "none."

[11] QSR International Pty Ltd. (2012). NVivo Qualitative Data Analysis Software Version 10. Doncaster, Australia: QSR International Pty Ltd.

Limitations

While the primary data analyses that are presented in this report provide useful context to understand the analyses of the secondary data and help to answer some questions about how school staff perceive the Healthy Schools Act, there are some important limitations to consider. For example, while the invitation to participate in the survey was sent out to all LEAs through OSSE's weekly newsletter, we received responses from approximately one quarter of eligible schools. It is possible that perceptions of school staff who were willing to participate in our voluntary survey are not representative of all school staff. Additionally, while the codes that were used to classify comments in the qualitative data (i.e., open-ended survey questions and telephone interviews) were informed by implementation science theory and best practices and agreed upon by a team of qualified researchers, alternative coding schemes might yield different results.



Evaluation of the District of Columbia Healthy Schools Act:

Descriptive Trends in Compliance Over Time

Overview

This brief presents descriptive analyses of schools' compliance with the District of Columbia Healthy Schools Act (HSA) from school year 2012-13 through school year 2015-16. A compliance index, made up of self-reported indicators from schools' annual School Health Profiles, was calculated for each school in each school year. Additional analyses explored trends in individual indicators (e.g., compliance with required health and physical education minutes) as well as differences in compliance based on schools' characteristics.

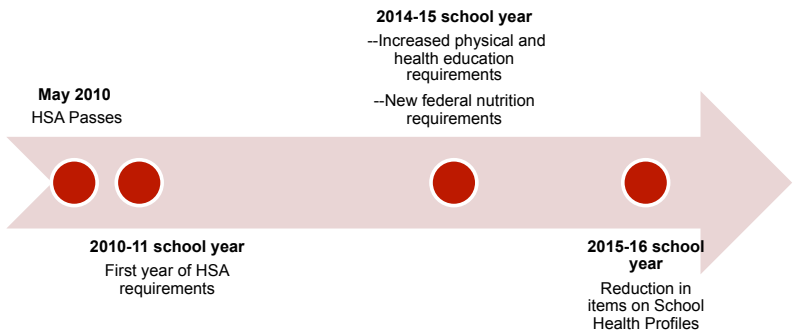
Key Findings

- From the 2012-13 school year through the 2014-15 school year, compliance was generally high, with schools meeting, on average, over 75 percent of HSA requirements.
- Compliance scores were comparatively lower in the 2015-16 school year than all previous years. This was largely the result of non-compliance with the increasing number of requirements for minutes dedicated to health and physical education, as well as declines in the required distribution of health and nutrition information.
- Schools with a student body of moderately high economic status (i.e., low poverty) had consistently lower HSA compliance scores than lower economic status schools.
- District of Columbia Public Schools (DCPS) had lower HSA compliance scores than public charter schools.
- Schools with a high percentage of students receiving special education services had lower HSA compliance scores than schools with a low percentage of students receiving special education services.
- Indicators for which over one third of schools are not compliant—such as incorporating movement in the classroom to promote physical activity—are starting points to improve rates of compliance.
- For requirements that saw large declines in the 2015-16 school year, such as those requiring distribution of information, reevaluation of the underlying goals and purposes may be warranted.
- In general, these findings highlight the need for continued guidance, oversight, and provision of resources to support schools' compliance with the Healthy Schools Act.

Introduction

The District of Columbia Healthy Schools Act (HSA; D.C. Law 18-0209) was passed in 2010 to help stem a growing epidemic of childhood obesity in the District of Columbia and to more broadly improve the health and health-related outcomes of the District's students. The HSA outlines requirements for schools in the District of Columbia related to nutrition, physical activity, and health education, including guidance on the nutritional content of food that is made available to students, and the amount of time students spend learning about health and participating in physical education. The HSA also stipulates that schools distribute information related to the food that is served to students as well as develop and distribute local wellness policies. Schools were required to comply with the HSA starting in school year 2010-11. Certain requirements, such as required minutes for physical and health education in the 2014-15 school year, increased over time.

Figure 1. Timeline of Healthy Schools Act implementation



As a first step in understanding whether the Healthy Schools Act is making progress towards its goals, it is critical to assess how well schools have adhered to the requirements of the HSA since its passage, and to explore whether compliance varies by school characteristics such as the economic status of the student body or whether a school is a DCPS or public charter school. Such analyses can help determine whether and where additional assistance might be needed to achieve more universal compliance across the District.

Taking advantage of the Office of State Superintendent of Education's (OSSE) annual collection of School Health Profiles (SHP), we constructed a compliance index to explore trends in implementation of the HSA over time and between schools. This report summarizes key findings related to the implementation of the Healthy Schools Act across the District of Columbia.

This brief is one in a series of three that describe the findings from an evaluation of the Healthy Schools Act of 2010:

1. *Evaluation of the District of Columbia Healthy Schools Act: Descriptive Trends in Compliance Over Time*
2. *Evaluation of the District of Columbia Healthy Schools Act: Health Knowledge and Academic Outcomes Over Time*
3. *Evaluation of the District of Columbia Healthy Schools Act: School Staff Perceptions of the Healthy Schools Act*

Methods

Compliance index construction

OSSE requires all DCPS and public charter schools in the District of Columbia to self-assess their health-related policies and practices by completing a School Health Profile (SHP) on an annual basis. Although all items on the SHP relate to health practices, only a subset directly reflect the requirements prescribed by the Healthy Schools Act. In order to determine the extent to which schools are compliant with the HSA, our index uses only those items from the SHP for the 2012-13, 2013-14, 2014-15, and 2015-16 school years that directly relate to the requirements for schools described in the Healthy Schools Act. For example, the SHP asks schools to report how many nurses they have, but because the HSA has no requirements regarding the number of nurses that schools should have, we did not include this information in the index.

The HSA established different requirements for elementary schools, middle schools, and high schools. Therefore, certain questions on the SHP surveys only require a response from schools serving those grades. Most notably, there were fewer requirements for high schools. In addition, the content of the SHP surveys changed over time as questions were added or, more often, removed. In many cases, the omission of items reflected OSSE's efforts to reduce the reporting burden on schools by relying on administrative records whenever possible. However such administrative data were not available to include in the compilation of the index score for purposes of this evaluation. Therefore, the number of HSA compliance index items also changed; the number of index items declined from 30 items in school year 2012-2013 for elementary and middle schools to 20 items in school year 2015-2016 and from 24 to 16 items for high schools during the same period. We restricted our analyses to SHP surveys that were completed during or after the 2012-13 school year, when several relevant items were added to the surveys. A table of indicators included in the compliance index for each year is available in Appendix A.

For each required item, schools received a score of "1" if they met the Healthy Schools Act requirement and a score of "0" if they did not. The total index score was then calculated by dividing the number of points earned by the total number of items for which a school provided responses. If a school's SHP was missing data for a particular item, this item was not included in the total index score rather than counting as non-compliant.[1] It is important to note that there were no systematic patterns of missing data nor were any schools missing responses to more than three index items in a given year.

[1] This approach does not penalize schools with missing data by assuming that a missing value is equivalent to "0" as would be the case for a calculation that used a denominator reflecting all possible questions that could have been answered. For instance, a hypothetical school had data for 13 out of 20 index items in a given year—eight "Yes" (1) responses and five "No" (0) responses. Our approach uses 13 as the denominator for the index score calculation. This enables the calculation of an index score, regardless of the reason for the missing data: Data could be missing because an item did not apply to that school level, or because an item wasn't asked in that year. Alternatively, missing data could reflect an implicit "No," or an accidental oversight and the school's answer would have been "Yes," or a database problem (i.e., the school answered the question but due to a technical issue, the answer did not make it into the final data file).

Compliance index and school characteristics associations

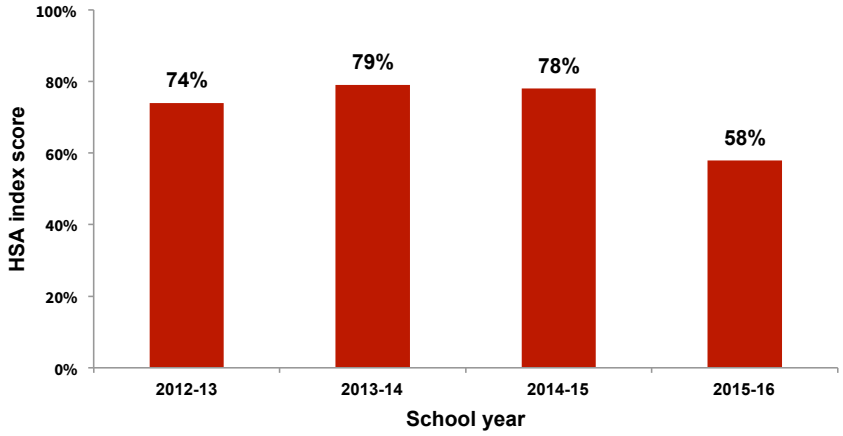
Once we had compliance index scores for each school, we estimated the association[2] between the schools' overall compliance scores and particular school characteristics. We also explored associations between school characteristics and individual items making up the index. The specific school characteristics that were examined included the percent of students in a school who were "direct certified,"[3] the percent of students eligible for special education services, the percent of students classified as English Learners (ELs), school enrollment, and school sector (public charter schools versus DCPS).

General Findings

On average, schools were implementing over 70 percent of HSA requirements until 2015-16, when compliance dropped dramatically.

In school year 2012-13, schools had an average HSA index score of 74 percent, meaning they were compliant with nearly three quarters of the measured requirements of the Act. This average remained relatively stable in the 2013-14 and 2014-15 school years at 79 percent and 78 percent, respectively (the change between these two school years was not significant). However, the average index scores for school year 2015-16 were significantly lower at 58 percent. This trend is reflected in Figure 2.

Figure 2. Average HSA compliance index score



Changes in School Health Profiles over time can explain some of the decrease in compliance scores.

Some of the decline in compliance can be explained by the reduction of items contained in the index for the 2015-16 school year. In other words, because there are fewer items, missing the same item in both 2014-15 and 2015-16 will make a bigger difference in a school's score in 2015-16 because each item accounts for a larger proportion of the total score since there are fewer items in total).

Much of the decline in compliance scores can be attributed to declines in schools' efforts to distribute health and nutrition information.

The rest, however, reflects real declines in the proportion of schools meeting specific HSA requirements. For

[2] We estimated the association between various school characteristics and schools' implementation of HSA using a Generalized Estimating Equations (GEE) model, an analysis approach that is appropriate for longitudinal data with an outcome that has values between zero and one, such as the proportion of compliance index items met by a school. The model uses robust standard errors and accounts for within school and cross-year dependence.

[3] Defined as being eligible for Temporary Assistance for Needy Families (TANF) or Supplemental Nutrition Assistance Program (SNAP) benefits, homeless, or committed to the District of Columbia Child and Family Services Agency (CFSA).

instance, index items tracking schools' reported efforts to distribute nutrition information (Figure 3) and local wellness policies (Figure 4), showed marked declines. These items, when combined, account for half of index items for elementary schools in 2015-16 but only one third of index items in 2014-15. In the case of nutrition information, this decline was observed after a spike in which nearly all schools met compliance in the 2014-15 school year. This spike is likely the result of new federal nutrition standards that went into effect that year and aligned with the requirements for nutrition in the HSA. When comparing these trends between DCPS and charter schools, the subsequent decline across the District was driven more by charter schools, falling from 97 percent of charter schools reporting nutritional information for each menu item to 44 percent, compared to a drop of 98 percent to 73 percent in public schools. There is no clear explanation, however, for why such declines occurred. One possible explanation is that declines in the distribution of local wellness policies may reflect the cyclical nature of the development and publication of such policies; that is, schools may only distribute policies as they are newly developed, assuming that stakeholders are already familiar with the contents of stable policies.

Figure 3. Schools' distribution of nutrition information

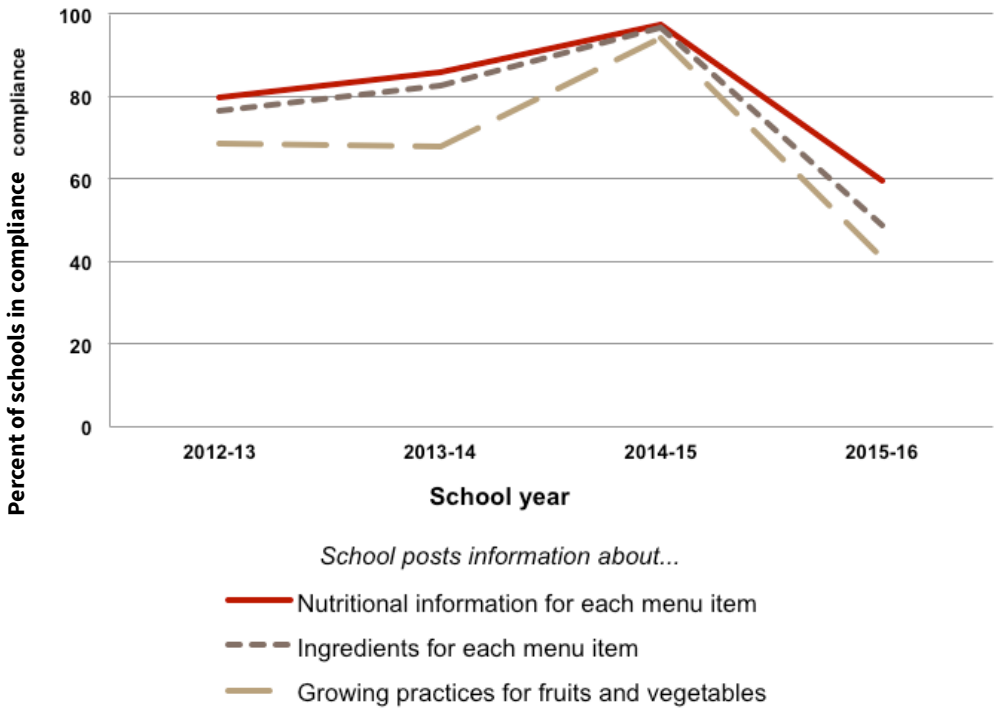
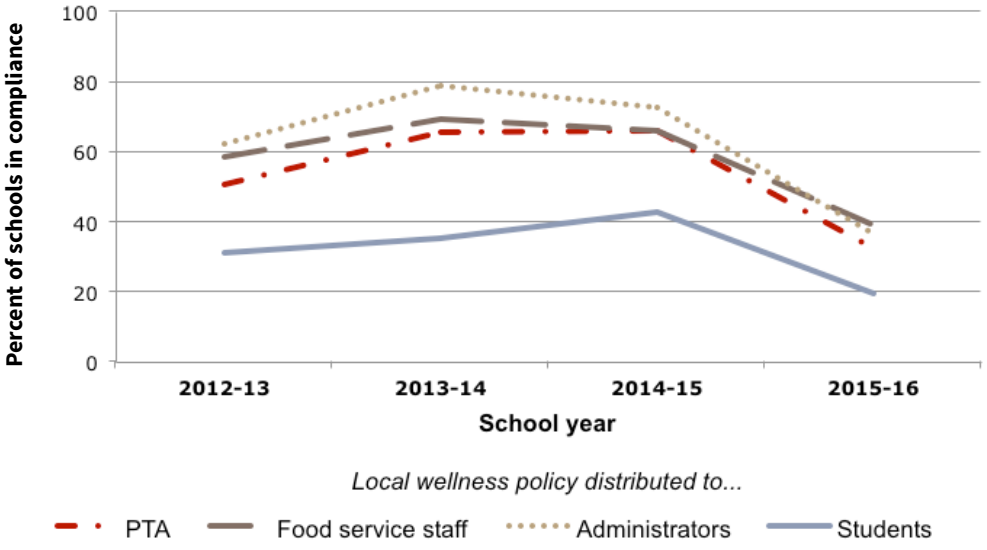


Figure 4. Schools' distribution of wellness policies



While compliance with regulations on minutes of physical education and health education dropped when requirements changed, the average amount of time dedicated to these subjects in schools has increased over time.

Of particular note are declines in compliance with the required minutes of physical education and health instruction. Per the HSA, required minutes for both subjects in grades K-8 quintupled in the 2014-15 school year (Figure 5). Whereas the vast majority of schools met the lower standard, when the more rigorous requirements went into effect, less than one quarter of schools met the requirement (Figure 6). Rates of compliance did not change significantly for the 2015-16 school year. However, it is important to note that the average number of minutes that schools report dedicating to physical and health education have increased over time (Figure 7). For physical education, the average duration of instruction increased from 73 minutes in K-5 and 101 minutes in K-8 for the 2012-13 school year to 88 minutes in K-5 and 145 minutes in K-8 for the 2015-16 school year. Similarly, for health education, the average duration of instruction increased from an average of 33 minutes in K-5 and 69 minutes in K-8 for the 2012-13 school year to 56 minutes in K-5 and 107 minutes in K-8 for the 2015-16 school year.

Figure 5. HSA physical education and health instruction minute requirements

Physical education minute requirements per week

	Grades K-5	Grades 6-8
Before 2014-15	30 minutes	45 minutes
After 2014-15	150 minutes	225 minutes

Health instruction minute requirements per week

	Grades K-8
Before 2014-15	15 minutes
After 2014-15	75 minutes

Figure 6. Schools' compliance with K-8 minute requirements

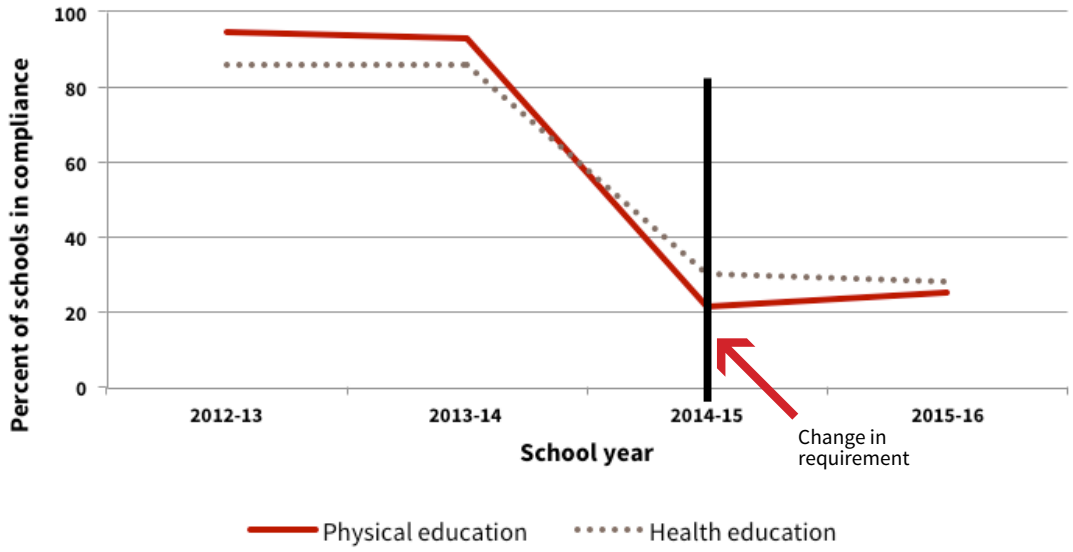
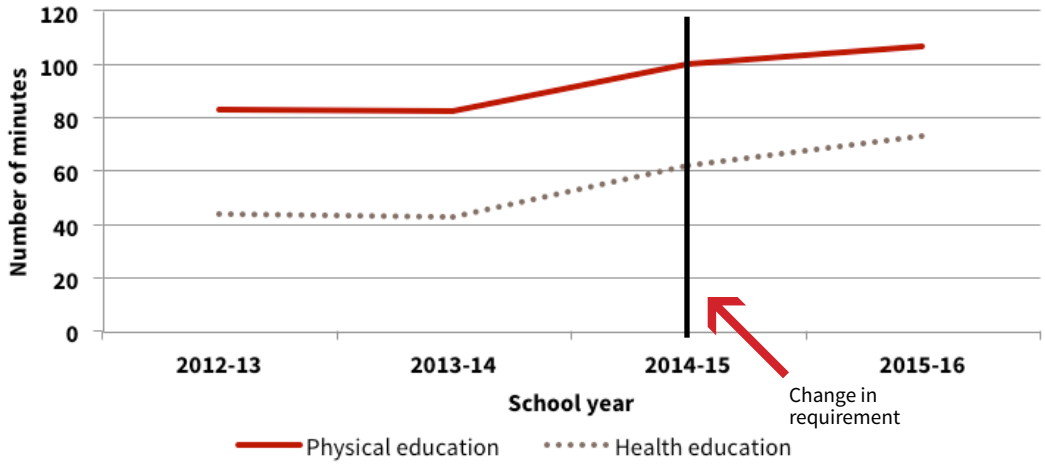


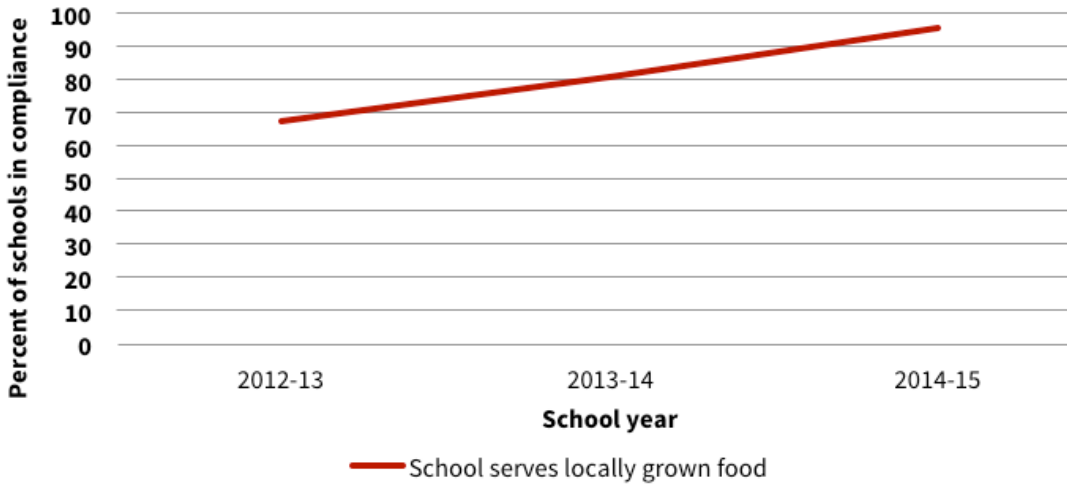
Figure 7. Minutes devoted to health and physical education



Compliance with nutrition requirements has been consistently high.

In contrast to low levels of compliance on health information distribution and instructional minutes dedicated to health-related topics, the majority of schools consistently, over time, reported compliance with most of the HSA requirements related to student nutrition and meals. For instance, in each school year between 2012-13 and 2015-16, more than 85 percent of schools reported providing cold, filtered water to students during meal times. Schools also showed growth in many of the more innovative requirements of the HSA, such as the requirement to serve locally grown food for school meals (Figure 8), with 68 percent of schools reporting providing locally sourced foods in the 2012-13 school year compared with 96 percent in the 2014-15 school year. This item was removed from the 2015-16 SHP.

Figure 8. School serves locally grown food

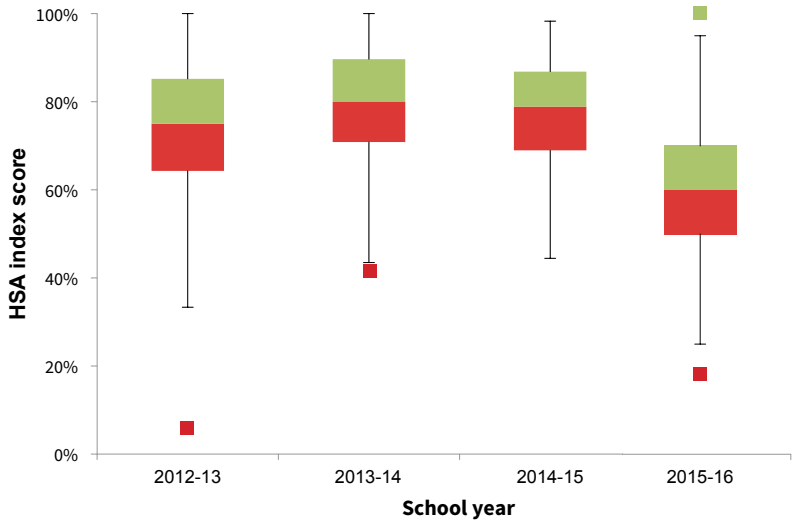


Compliance with the remaining implementation indicators that make up the HSA compliance index was relatively stable over time. Still, several of the remaining indicators, beyond the information distribution and instructional minutes described previously, could be targeted to improve overall compliance. For instance, more than one third of schools (36 percent) do not use "movement in the classroom" to promote physical activity. This requirement can be easily integrated into schools with guidance about the role of movement in various lessons.

Compliance scores vary by school characteristics.

Although the overall average compliance score was relatively high for most years examined (74 percent in 2012-13, 79 percent in 2013-14, 78 percent in 2014-15 and 58 percent in 2015-15; see Figure 9), scores varied among schools in every year. The bars in Figure 9 represent the range of scores for each year. The green and red boxes show the range of scores for schools in the two middle quartiles (i.e., the second and third quartiles), while the black lines represent the top and bottom quartiles (i.e., the first and fourth quartiles). The small red dots below the boxes represent schools with scores that are much lower than the rest of the schools in the bottom quartile, while the green dot in 2015-16 represents a school that was much higher than the other schools in the top quartile. When ignoring the schools with the most extreme scores, it appears that the range of scores was fairly similar across school years 2012-13 through 2014-15; there was a drop in the lower range of scores in the 2015-16 school year, consistent with the overall drop in scores described earlier.

Figure 9. HSA compliance index scores



In order to better understand the observed variations in compliance, we explored whether different school characteristics—including ward, percentage of students who were direct certified, percentage of English Learners (EL), percentage receiving special education services, overall school enrollment, grade configuration (e.g., K-5 vs. K-8 vs. 6-8 vs. 9-12) and sector (i.e., DCPS versus public charter schools)—were related to compliance scores. Such explorations are solely exploratory; any significant findings[4] do not imply causation. Rather, significant associations suggest that there may be something about schools with a given characteristic that may also affect implementation of the HSA, but further evaluation is needed to understand that association.

No differences in compliance scores were found by ward, school size, grade configuration, or percentage of English Learners.

Associations between these characteristics and overall compliance were not statistically significant. Significant associations were found between the compliance scores and percentage of students receiving special education services, percentage of students who are direct certified, and school sector.

Schools with the highest percentages of students receiving special education services generally had lower overall compliance scores.

There was a statistically significant negative association between the proportion of enrolled students receiving special education services and compliance scores. Schools with greater than 20 percent of students receiving special education services had compliance scores approximately 12 percent lower than schools with less than 5 percent of students receiving special education services.

Schools with a moderately high economic status tended to have the lowest overall compliance scores.

The proportion of enrolled students who are direct certified, an indicator of overall student poverty that includes students who are eligible for Temporary Assistance for Needy Families (TANF) or Supplemental Nutrition and Assistance Program (SNAP) benefits, are homeless, or are in the District of Columbia Child and Family Services Agency (CFSA), was significantly associated with HSA compliance. We split schools into quartiles based on proportion

[4] Statistical significance means that a finding can be reasonably said to represent an actual association rather than occurring by chance. For purposes of this brief, statistical significance was determined at the p<.05 level; that is, there is less than a 5 percent chance that an observed association is spurious.

of students who are direct certified,[5] from quartile one—the highest percentage of students direct certified (i.e., lowest economic status) —to quartile four—the lowest percentage of students direct certified (i.e., highest economic status). On average, those schools with moderately high economic status (third quartile) tended to have the lowest compliance index scores. Scores for these schools are approximately 5 percent lower than both the highest economic status schools and the lowest economic status schools. This difference was observed in the 2012-13 school year and remained consistently lower through the 2015-16 school year (ranging from 4 percent in 2013-14 to 6 percent in 2015-16). This difference equates to a moderately high economic status elementary school implementing approximately 1.4 fewer of the HSA requirements measured by the compliance index than a similar highest economic status school.

Charter schools generally have higher compliance scores when compared with DCPS.

Overall, public charter schools had higher implementation scores than DCPS, averaging around 5 percent higher across school years from 2012-13 through 2015-16 (ranging between 5 percent in 2014-15 to 7 percent in 2015-16). This difference is statistically significant and equates to a public charter elementary or middle school being compliant with approximately 1.5 more HSA indicators than a similar DCPS school.

Differences among schools on individual items provide insights on potential barriers to compliance.

In order to more fully understand variation between schools on compliance, we also looked at associations between individual items that comprise the compliance index with school characteristics. Findings from these analyses revealed interesting patterns based on sector, school size, and economic status. Such differences indicate that there may be structural or contextual barriers to meeting certain requirements in the Healthy Schools Act.

Both public charter schools and DCPS saw declines in compliance with P.E. minutes; however, while public charter schools remain higher, DCPS began to narrow the gap in school year 2015-16.

Differences in compliance by sector are especially pronounced in the indicators for required instructional minutes for physical and health education. Both DCPS and public charter schools had similar scores in the 2012-13 and 2013-14 school years, but starting in school year 2014-15, DCPS schools were significantly less likely to meet these requirements than public charter schools, a difference of nearly 31 percent for physical education (Figure 10) and 27 percent for health education (Figure 11) in school year 2014-15. These differences may reflect the more autonomous governance and fewer overarching requirements of public charter schools compared with DCPS as schools work to increase their minutes of instruction to meet the new requirements.

[5] Quartile classification was determined by distribution and poverty categories used by the National Center for Education Statistics. Specifically those in the highest economic status quartile have less than 25 percent of enrolled students who are direct certified. Those in the lowest economic status quartile have between 75 to 100 percent of enrolled students direct certified. In the 2015-16 school year, 22 schools met the criteria for the lowest economic status schools, 73 schools for moderately low economic status, 57 for moderately high economic status, and 34 schools for high economic status.

Figure 10. Schools' compliance with K-8 physical education minute requirements, by sector

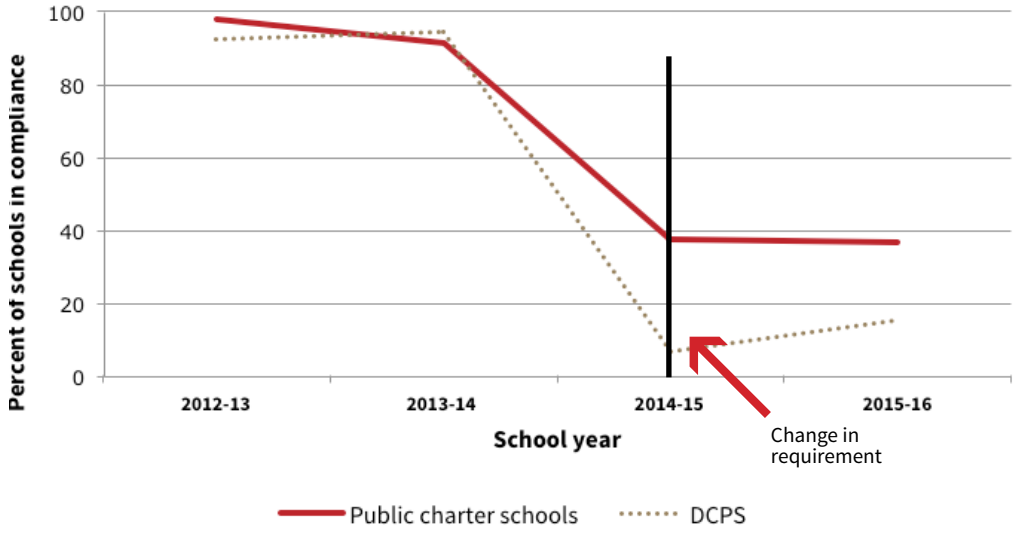
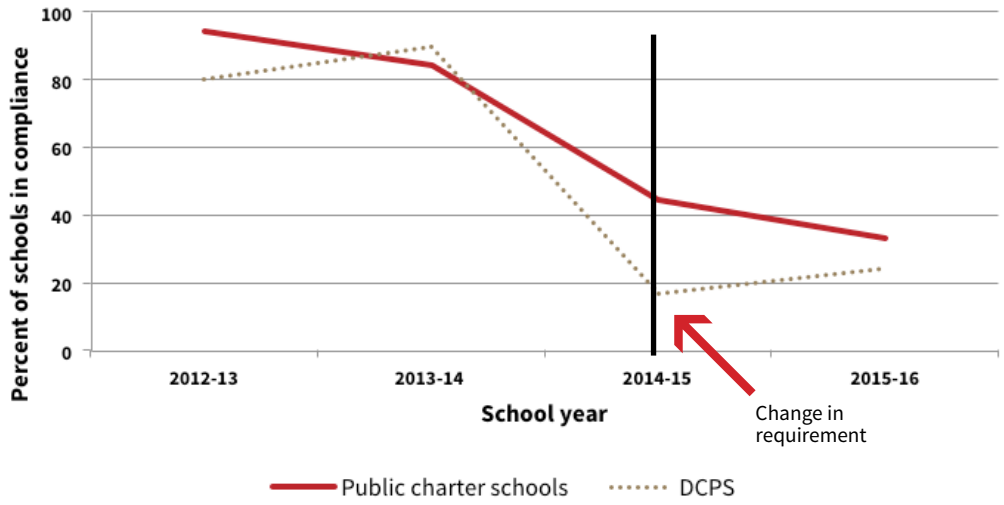


Figure 11. Schools' compliance with K-8 health education minute requirements, by sector



Larger schools are more likely to implement active recess and to encourage physical activity through athletic programs.

Schools serving more than 450 students are nearly nine percent more likely to implement active recess and provide athletic programs than schools serving under 250 students. They are approximately three percent more likely than schools serving 250 to 349 students (this effect is marginally significant), and four percent more likely than schools serving 350 to 449 students to implement these programs. It may be that larger schools have more physical space on school grounds to allow for these activities, or have greater staff capacity to supervise recess and actively engage students. It is important to consider, then, whether smaller schools face barriers to complying with this requirement.

Schools in the highest economic status group are more likely to implement walk or bike to school and safe routes to school programs compared with schools of moderately-high, moderately-low, and low economic statuses.

Schools of moderately-high, moderately-low, and low economic status have a 28 to 45 percent lower likelihood of implementing walk or bike to school programs or safe routes to school programs compared with schools in the high economic status group. There are no differences among the other three groups, however. These large differences suggest that schools serving higher income students may be better positioned to implement these programs. For example, because more students have access to bikes or the communities in which these schools are located have better infrastructure for pedestrians and cyclists, suggesting that some schools may require additional investments to overcome structural and environmental challenges to implementing these interventions.

Conclusions and Recommendations

Despite the fact that the District of Columbia Healthy Schools Act has been in place for the last six years, schools continue to vary on their compliance with the law's key requirements. Although average compliance scores hovered around 75 percent for school years 2012-13, 2013-14, and 2014-15, scores significantly dropped in the most recent school year. This decline may have been caused, in part, by the inclusion of fewer items on the school health profile surveys that were tied to specific requirements of the HSA. It also reflects actual declines in adherence to requirements regarding health and physical education minutes and distribution of nutrition information and local wellness policies. Such declines underscore the need for continued guidance, oversight, and provision of resources to schools around the requirements of the HSA.

Overall, this exploration of HSA compliance over time indicates that schools are consistently complying with many of the requirements of the HSA, but it also highlights significant gaps when it comes to schools' compliance with required minutes of health and physical education instruction. These analyses also suggest a number of strategies that schools could easily embrace to improve their compliance with the law, such as promoting active recess and movement in the classroom. Below we offer some recommendations for improving compliance with the HSA.

Work with schools to revise the School Health Profiles to accurately measure school compliance with the HSA and school performance with respect to student health outcomes. While OSSE has made efforts in recent years to streamline its data collection related to the requirements of the HSA, additional steps could be taken—in collaboration with schools and LEAs—to collect data that is more useful for schools. The current system for assessing school performance related to the HSA is based on monitoring what schools are doing (i.e., outputs) without also monitoring how students are doing (i.e., outcomes). This sole focus on outputs rather than outcomes is a lost opportunity to determine the extent to which compliance with the HSA and related school health practices and policies is associated with improved student outcomes. Furthermore, schools are expected to self-report their efforts around the HSA, with few systems to validate their responses. In some cases the person completing the SHP may have limited knowledge of the school's efforts or may face pressures to report greater compliance with the HSA than is taking place. Working with schools to identify a meaningful and easily collected set of school outputs *and* student outcomes could help schools assess and monitor the *effectiveness* of their HSA-related activities each year. Combining output data with outcomes data could serve dual purposes for OSSE by helping to identify effective health-related practices to be shared across schools while also identifying which schools might need additional implementation support. Engaging schools in the process would ensure school buy-in and promote more valid data collection.

Ensure that the HSA represents a balance of incentives, penalties, and supports that represents the District of Columbia's priorities for improving student outcomes. Of HSA's provisions, schools demonstrated greatest compliance with—and greatest awareness of—the nutrition requirements, including providing students with locally-

sourced food, cold and filtered water, and appropriate vending machine options. It is important to note that these nutrition requirements are the only component of the HSA that are reinforced by financial incentives. For example, the HSA dictates that schools that provide locally-sourced food to students are to be reimbursed at a higher rate than they would for foods sourced outside the region.[6] Furthermore, schools that are not compliant with the nutrition mandates set out in the HSA could face a penalty of up to $500 per day. It may be that these types of penalties and supports have encouraged schools to prioritize certain HSA provisions over others.

Work with schools to identify and address barriers to using HSA-related grants to improve compliance with Physical Education minute requirements. Currently, schools are required to submit a grant application in order to access most of the HSA-related funds available for increasing physical activity. While the current legislation requires that grant funds be made available through a competitive grant process, such as PAY Grants, it may be that the program or application requirements are too burdensome for some schools to satisfy. In addition to information gathered from school administrators during compliance visits, OSSE may want to conduct focus groups or interviews with schools to identify the barriers to accessing grants given that very few schools are compliant with the current requirements for minutes of PE instruction. OSSE may also leverage information collected from the six DC Physical Education and Health Education grantees to inform new efforts to support schools in increasing their compliance with the PE minute requirements.

[6] Healthy Schools Act of 2010 D.C. Law 18-209, § 38-821.01(2010). Retrieved October 6, 2016 from: http://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/Healthy%20Schools%20Act%20as%20Amended%2020121231%20%282%29.pdf

Evaluation of the District of Columbia Healthy Schools Act:

Health Knowledge and Academic Outcomes Over Time

Overview

This brief presents analyses of the associations between schools' compliance with the District of Columbia Healthy Schools Act (HSA) and students' health knowledge, academic performance, and attendance. It also describes associations between school health policies and practices that are not addressed in the HSA but that are documented in the Office of the State Superintendent of Education's (OSSE) School Health Profiles (SHP). Student health knowledge is presented for school years 2012-13 and 2013-14, and student academic performance and attendance is presented for school year 2012-13 through school year 2014-15. A compliance index, made up of self-reported compliance indicators from schools' annual School Health Profiles, was calculated for each school in each year.

Key Findings

- Compliance with the HSA was not associated with students' health knowledge, academic performance, or attendance.
- Health policies and practices not required by the HSA were not associated with students' health knowledge, academic outcomes, or attendance—except for school gardens, which are associated with nutrition knowledge.
- Schools' compliance with the physical education requirements of the HSA was not associated with students' physical education knowledge.
- Schools' compliance with the nutrition and health education requirements of the HSA was not associated with students' nutrition knowledge.

Given that these findings show no association between compliance with the Healthy Schools Act and student health knowledge or academic performance, it is important to reconsider the pathways through which schools influence student health in order to refine the Healthy Schools Act to emphasize proven and promising strategies.

Introduction

The District of Columbia Healthy Schools Act (HSA; D.C. Law 18-0209) was passed in 2010 to help stem a growing epidemic of childhood obesity in the District of Columbia and to more broadly improve the health and health-related outcomes of the District's students. The HSA outlines requirements for schools in the District of Columbia related to nutrition, physical activity, and health education, including guidance on the nutritional content of food that is made available to students, and the amount of time students spend learning about health and participating in physical education. The HSA also stipulates that schools distribute information related to the food that is served to students, as well as develop and distribute local wellness policies. Schools were required to comply with the HSA starting in school year 2010-11. Certain requirements, such as required minutes for physical and health education in the 2014-15 school year, increased over time.

While the theory of change for the HSA focuses on health outcomes for students (see Appendix A), there has been growing interest in better understanding how the HSA might influence academic performance. In February of 2016, a team of researchers at American University released the first analyses of data from the initial five years of the Healthy Schools Act, including an examination of the relationship between implementation of the Act and academic performance.[1] The researchers developed an implementation score that included items that are directly related to requirements of the HSA as well as items covering other health-related policies and practices not mandated by the Act. When the researchers divided elementary and middle schools into quartiles each year based on schools' implementation scores, they found that the average math scores of schools in the group with the highest implementation scores were higher than the average math scores of schools in the group with the lowest implementation scores in each year that they examined. Although the researchers observed this trend, they did not test whether this association was statistically significant; that is, the researchers did not test whether the association between implementation and math scores was meaningful above what would be expected based on chance.

This brief is one in a series of three that describe the findings from an evaluation of the Healthy Schools Act of 2010:

1. *Evaluation of the District of Columbia Healthy Schools Act: Descriptive Trends in Compliance Over Time*
2. *Evaluation of the District of Columbia Healthy Schools Act: Health Knowledge and Academic Outcomes Over Time*
3. *Evaluation of the District of Columbia Healthy Schools Act: School Staff Perceptions of the Healthy Schools Act*

The study that is described in this brief builds on that prior study by conducting a school-level analysis of the relationship between compliance with the HSA and students' health knowledge and academic performance. More specifically, rather than grouping schools based on their implementation scores each year and comparing average math scores for each group, the current study looks at the relationship between compliance scores and students' health knowledge and academic outcomes in each school over time. Furthermore, the compliance scores described in this brief are based solely upon items that make up the "letter of the law" of the HSA to separate schools' efforts based upon the Act from their other health-related efforts. These school-level analyses, which provide a more precise estimate of the association between compliance with the HSA and student outcomes over time, are summarized in this brief.

It is important to note that although the analyses presented in this brief do test for statistical significance, such findings do not imply causation. That is, if there exists a statistically significant association between the HSA and an outcome, we cannot say whether or not the Act was actually responsible for such differences. It is possible that other unmeasured factors may explain any observed associations. Additionally, any null findings (i.e., no association found) should also be considered with some caution. An association between the HSA and the outcome may be possible, but the strength of this association is likely not strong enough to be detected with the available data.

[1] Watts, E., Snelling, A., Irvine-Belson, S., Van Dyke, H., Malloy, E., & Ghamarian, Y. (2016). The Healthy Schools Act of 2010: Building Healthy School Environments. American University: Washington, DC.

Methods

Student outcomes

Health knowledge. For student health knowledge, we used the average DC Comprehensive Assessment System (CAS) Health and Physical Education Assessment score for each school for school years 2012-13 and 2013-14. The assessment was administered to students in fifth and eighth grades and also to high school students enrolled in a health class. Each assessment contained between 55 and 60 multiple choice items, covering topics such as nutrition, communication and emotional health, disease prevention, safety skills, and sexual health. No health and physical education assessment was administered during the 2014-15 school year. Table 1 presents the city-wide average percent correct for overall health knowledge, physical education knowledge, and nutrition knowledge.

Table 1. DC CAS Health and Physical Education Assessment percent correct

Grade	2012-13	2013-14
Overall		
5th	64%	65%
8th	64%	68%
High school	62%	66%
Physical education		
5th	64%	73%
8th	54%	56%
High school	51%	53%
Nutrition		
5th	73%	71%
8th	50%	65%
High school	59%	62%

Math and reading performance. For math and reading performance, we used the percentage of students at each school that were classified as proficient or above (i.e., students who were either proficient or advanced) for school year 2012-13 through school year 2014-15. Schools in the District of Columbia administered the DC CAS in school years 2012-13 and 2013-14 and switched to the Partnership for Assessment of Readiness for College and Careers (PARCC) in school year 2014-15. During the first year of the PARCC, most schools saw a decline in the percentage of students that were classified as proficient or above (see Table 2), a trend that was seen nationwide. In order to make scores across the DC CAS and the PARCC more comparable, we assigned a score to each school for each year based on how they compared to all other schools (i.e., standardized score). This strategy allowed us to explore how schools performed across all three years despite the change in assessments.

Table 2. Math and reading percent proficient

	Math			Reading		
Grade	2012-13 (CAS)	2013-14 (CAS)	2014-15 (PARCC)	2012-13 (CAS)	2013-14 (CAS)	2014-15 (PARCC)
3rd – 5th	49%	51%	51%	48%	48%	46%
6th – 8th	59%	59%	40%	52%	52%	45%
High school	49%	55%	34%	48%	52%	45%

Attendance. In order to explore associations between Healthy Schools Act compliance and student attendance, we looked at both in-seat attendance (i.e., the average daily attendance at a given school across the entire school year) and truancy (i.e., the proportion of students who missed more than 10 days of school without an excuse in a given school year) for school year 2012-13 through school year 2014-15. Table 3 presents attendance and truancy rates for each school year, by grade level.

Table 3. Attendance and truancy rates

Grade	2012-13	2013-14	2014-15
Attendance			
K - 5th	94%	94%	94%
6th – 8th	91%	91%	91%
9th – 12th	85%	86%	85%
Truancy			
K - 5th	16%	14%	20%
6th – 8th	20%	16%	29%
9th – 12th	38%	39%	48%

Compliance index

OSSE requires all public and public charter schools in the District of Columbia to self-assess their health-related policies and practices by completing a School Health Profile (SHP) on an annual basis. Although all items on the SHP relate to health practices, only a subset directly reflect the requirements prescribed by the Healthy Schools Act. We developed an index to measure compliance with the Healthy Schools Act that relied on items collected annually through the self-reported School Health Profile that directly related to the explicit requirements of schools as described in the Healthy Schools Act (Table 4). See the brief entitled *Evaluation of the District of Columbia Healthy Schools Act: Descriptive Trends in Compliance Over Time* for more information about the index.

Table 4. Compliance score by school year

	2012-13	2013-14	2014-15
Average HSA compliance score	73%	79%	78%

School characteristics

Because there are a number of factors that might influence academic performance and attendance in addition to a schools' compliance with the HSA, we also considered the following school characteristics in our analyses: school enrollment, proportion of students who are "direct certified" (i.e., eligible for Temporary Assistance for Needy Families (TANF) or Supplemental Nutrition and Assistance Program (SNAP) benefits, are homeless, or are in the District of Columbia Child and Family Services Agency (CFSA)), the proportion of students who are English learners (EL), the proportion of students who receive special education services, and school sector (District of Columbia Public Schools (DCP) versus public charter schools), the grades served, and the ward in which the school is located (Table 5).

Table 5. Average school characteristics for analytic sample by school year

	2012-13	2013-14	2014-15
Total schools (n)	155	182	194
Direct certified (%)	49%	48%	48%
English learners (%)	9%	8%	8%
Special education (%)	13%	13%	13%
Public charter schools (%)	39%	46%	47%
Average enrollment	378	389	398
Grade configuration			
Elementary K-5	49%	51%	51%
Elementary/middle K-8	26%	23%	24%
Middle K-8	8%	8%	8%
Middle/high 6-12	4%	4%	5%
High 9-12	14%	13%	12%
Ward			
1	11%	10%	10%
2	5%	4%	5%
3	6%	5%	5%
4	17%	16%	16%
5	12%	14%	15%
6	15%	16%	14%
7	14%	15%	15%
8	19%	19%	19%

Analyses

We estimated the association between compliance with the HSA and the student outcomes of interest using a Generalized Estimating Equations (GEE) model, which is appropriate for longitudinal data.[2] The model uses robust standard errors and is appropriate for comparing data collected from multiple groups (i.e., schools) over multiple years. Except when noted, all analyses controlled for the school characteristics listed above. Coefficients and p-values for analyses presented in this brief are included in Appendix B. Note that a p-value less than 0.05 is considered statistically significant.

General Findings

Student health knowledge

Because the requirements of the Healthy Schools Act are most closely related to student health knowledge, we begin by presenting the findings related to student health knowledge as measured by the DC CAS Health and Physical Education Assessment. In addition to examining the association between overall compliance with the HSA and overall health knowledge, we also explored whether compliance sub-indices for physical education, nutrition, and health education (see Exhibit 1 for a list of requirements) were associated with physical education and nutrition knowledge.

No association between overall compliance with the Healthy Schools Act (or implementation of other health policies and practices) and overall student health knowledge.

Overall, we found that there was no association between schools' HSA Compliance Index scores or implementation of other health policies and practices (see Exhibit 2) and overall health knowledge.

No association between compliance with the Healthy Schools Act physical education requirements (or implementation of other health policies and practices) and student physical education knowledge.

We found that there was no association between compliance with physical education requirements (see Exhibit 1 for a list of requirements) or other health policies and practices (see Exhibit 2) and student physical education knowledge.

No association between compliance with the Healthy Schools Act nutrition or health education requirements and student nutrition knowledge.

[2] Liang K-Y, Zeger SL. Longitudinal data analysis using generalized linear models. Biometrika 1986;73:13–22.

Exhibit 1. Healthy Schools Act compliance sub-indices

Physical Education (9 items)

- School promotes physical activity through:
  - Active recess*
  - After school activities
  - Movement in the classroom
  - Athletic programs
  - Walk or bike to school initiatives
  - Safe routes to school
- School met requirement for minutes of PE instruction per week*
- More than 50 percent of time in physical education course devoted to activity*
- PE is based on OSSE's physical education requirements*

Nutrition (12 items)

- School served breakfast
- School served breakfast in the classroom (ES)/at grab-and-go cart (MS, HS) [if 40 percent or more of students at the school qualified for FRPL]
- Lunch period was 30 minutes or longer
- School served locally grown and processed foods at breakfast and/or lunch
- School made information available about:
  - Breakfast and lunch menus
  - Nutritional content for menu items
  - Ingredients for menu items
  - Source of fruits and vegetables
  - Vegetarian food options
  - Local wellness policy
- Cold, filtered water was available
- Items in school vending machine complied with HSA requirements

Health Education (2 items)

- School met the requirements for minutes of health education per week*
- Health education instruction is based on OSSE's health education standards

* K-8 grades only

The association between the nutrition requirements of the HSA (see Exhibit 1) and students' nutrition knowledge was not statistically significant. Because the nutrition requirements focus largely on supporting healthy eating behaviors, and because students may receive the majority of their nutrition instruction during health class, we also looked at the association between health education (see Exhibit 1) and nutrition knowledge. We found no significant association between compliance with health education requirements and student nutrition knowledge.

Schools with school gardens tend to have higher average nutrition knowledge scores; no association with other health policies and practices.

Schools with a school garden tend to have average nutrition knowledge scores that are approximately 5 percent higher compared to schools with no garden.[3] Because there were only between five and six nutrition items on the assessment depending on the grade level, this difference translates to students in schools with a garden answering an additional one-third of an item correctly, on average. No associations were found between student nutrition knowledge and other school health policies and practices (see Exhibit 2).

Exhibit 2. Additional school health policies and practices

- Type of nurse coverage at the school (full-time or part-time nurse coverage)
- School has full-time mental health staff
- School has part-time mental health staff
- School employs one or more health education teachers
- School employs one or more physical education teachers
- School includes health education in courses outside of the health education course
- School has a garden

Attendance and truancy

One mechanism by which efforts to increase school health could affect students is through improving attendance. Health concerns, especially asthma, are associated with absenteeism,[4] which in turn is associated with poor academic performance[5] and increased risk for dropping out.[6] Compliance with the HSA could plausibly improve student health by increasing student health knowledge and promoting healthy eating and physical activity habits, thus reducing the number of days students miss school due to illness. Alternatively, some school health efforts, such as increased physical activity or school gardens, could help to promote student engagement. We explored the association between both in-seat attendance (i.e., the average daily attendance at a given school across the entire school year) and truancy (i.e., the proportion of students who missed more than 10 days of school without an excuse in a given school year) and compliance with the HSA as measured by our compliance index. We also examined the association between truancy and attendance and several related school policies and practices (see Exhibit 2).

No association between overall compliance with the Healthy Schools Act (or implementation of other health policies and practices) and attendance or truancy.

We examined the relationship between compliance with the HSA or other health policies and practices (see Exhibit 2) and both in-seat attendance and truancy and found no association.

[3] It is important to note that when we include the location of the school (i.e., ward) in the analysis, we find that the association between gardens and nutrition knowledge is no longer significant. This is likely due to the fact that school gardens are not evenly distributed across the city. For example, while approximately half (57 percent) of schools report having a school garden, 83 percent of schools in Ward 8 have gardens while only 20 percent of schools in Ward 2 have gardens. This means that there is a strong correlation between ward and having a school garden and when both variables are included in the model, they may mask each other's effects. It is possible that the association between school gardens and nutrition knowledge is really a proxy for an association between ward and nutrition knowledge; however our analyses indicate that ward, in the absence of school gardens, is not associated with nutrition knowledge. Furthermore, while there is no theoretical foundation to suggest why ward might be related to nutrition knowledge, it is theoretically plausible that school gardens would be related to student nutrition knowledge.

[4] Forrest, C. B., Bevans, K. B., Riley, A. W., Crespo, R., & Louis, T. A. (2013). Health and school outcomes during children's transition into adolescence. *Journal of Adolescent Health, 52*(2), 186-194.

[5] Romero, M., and Lee, Y. (2007). *A National Portrait of Chronic Absenteeism in the Early Grades*. New York, NY: The National Center for Children in Poverty.

[6] Allensworth, E., and Easton, J.Q. (2005). *The On-Track Indicator as a Predictor of High School Graduation*. Chicago: Consortium on Chicago School Research.

Academic performance

There is increased interest in understanding whether efforts to improve student health can also affect academic performance. The mechanisms by which physical education and nutrition might influence academic performance are complex. For example, some researchers have suggested that increased physical activity improves social skills and mental health, while others have identified improvements in aerobics—and resulting increases in oxygen for the brain—as likely mechanisms.[7] Similarly, improved nutrition might reduce the distractions of hunger and ensure that the brain has the necessary fuel to function well. Previously published analyses suggested that there may be an association between implementation of the HSA and math performance among elementary and middle school students in the District of Columbia.[8] A recent review of more than 50 studies found evidence to suggest that physical education, physical activity during recess, activity breaks in the classroom, and participation in extracurricular physical activities are associated with improved academic performance.[9] Another recent systematic review of studies looking at health-related interventions in schools identified two high-quality studies that examine the relationship between academic performance and interventions designed to address both physical activity and nutrition.[10] One study found a positive relationship with both math and language arts performance, while the other found a positive relationship with math performance, but not with language arts. We explored the association between math proficiency and compliance with the HSA, as measured by our compliance index, as well as the association between several health-related school policies and practices. Analyses controlled for the school characteristics listed earlier in this brief.

Math proficiency

We explored the association between math proficiency and compliance with the HSA as measured by our compliance index, as well as the association between several health-related school policies and practices (see Exhibit 2). Analyses controlled for the school characteristics listed earlier in this brief.

No association between compliance with the Healthy Schools Act (or implementation of other school health policies and practices) and math proficiency.

We examined the association between compliance with the HSA and the percentage of students in a school that were proficient in math and found no significant association. We also did not find any associations between math proficiency and any of the other school health policies or practices that we examined.

Reading proficiency

We explored the association between reading proficiency and compliance with the HSA as measured by our compliance index, as well as the association between several health-related school policies and practices (see Exhibit 2). Analyses controlled for the school characteristics listed earlier in this brief.

[7] Singh, A., Uijtdewilligen, L., Twisk, J. W., Van Mechelen, W., & Chinapaw, M. J. (2012). Physical activity and performance at school: a systematic review of the literature including a methodological quality assessment.Archives of pediatrics & adolescent medicine, 166(1), 49-55; Haapala, E. A. (2013). Cardiorespiratory fitness and motor skills in relation to cognition and academic performance in children–a review. *Journal of human kinetics, 36*(1), 55-68.

[8] Watts, E., Snelling, A., Irvine-Belson, S., Van Dyke, H., Malloy, E., & Ghamarian, Y. (2016). The Healthy Schools Act of 2010: Building Healthy School Environments. American University: Washington, DC.

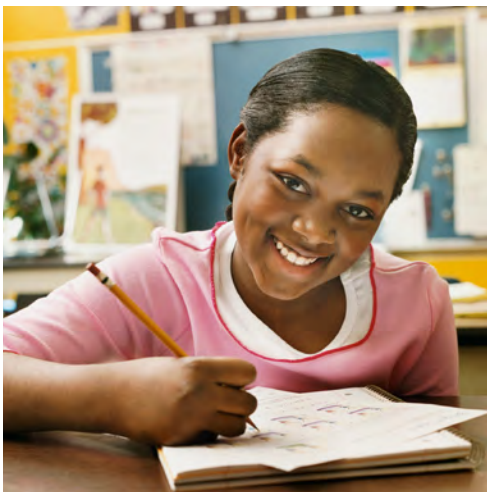
[9] Rasberry, C. N., Lee, S. M., Robin, L., Laris, B. A., Russell, L. A., Coyle, K. K., & Nihiser, A. J. (2011). The association between school-based physical activity, including physical education, and academic performance: a systematic review of the literature. *Preventive medicine, 52*, S10-S20.

[10] Pucher, K. K., Boot, N. M. W. M., & De Vries, N. K. (2013). Systematic review: school health promotion interventions targeting physical activity and nutrition can improve academic performance in primary-and middle school children. *Health Education, 113*(5), 372-391.

No association between compliance with the Healthy Schools Act (or implementation of other school health policies and practices) and reading proficiency.

Similar to math proficiency, we did not find an association between overall implementation of the HSA and reading proficiency. We also did not find any associations between reading proficiency and any of the other school health policies or practices that we examined.

Conclusions and Recommendations



Overall, we found only one significant association between health policies and practices and student health knowledge and no significant associations related to compliance with the HSA. It is important to note that compliance with the HSA may be associated with other important outcomes that we were not able to examine due to data limitations, such as student health. When considering the implications of these findings, it is also important to keep in mind that the HSA lays out requirements related to health promotion, but we do not know the quality with which schools are implementing those requirements. Because the data that were available for this evaluation focused on whether schools are compliant with the HSA, rather than the quality with which those requirements are implemented, we cannot draw strong conclusions about why we did not find significant associations between compliance with the HSA and student outcomes. For example, it could be that the HSA does not target the pathways most likely to promote health knowledge and academic performance. It could also be that schools considered compliant with the HSA have very different levels of implementation quality. However, the finding that school gardens hold promise for increasing nutrition knowledge suggests that schools' efforts to promote health can make a difference. In order to leverage these findings, we provide some suggestions for next steps.

Refine the HSA to strengthen alignment with accumulating evidence about school health policies and practices that are effective in improving student outcomes. A theory of change is most useful for improving outcomes when it reflects the best evidence. Given that we found no associations between HSA compliance and student outcomes, it may be useful to refine the Healthy Schools Act's theory of change so that it aligns more closely with the most current evidence of school-based health interventions' effects on health and academic outcomes. A number of relevant systematic reviews have been published since the passage of the HSA in 2010, including comprehensive guidance from the Centers for Disease Control and Prevention.[11] In reviewing new evidence, it is likely that additional strategies for improving the health of the District's students will be identified for inclusion in the Healthy Schools Act. Some areas with particularly strong evidence related to health and academic outcomes include: student participation in the development, implementation, and evaluation of school-based health initiatives;[12] tailored plans for schools that are based on a comprehensive needs assessment;[13] access to school-based mental health services;[14,15] and access to school-based health centers.[16]

Offer trainings on implementation science to ensure that schools are able to select health-related

[11] Centers for Disease Control and Prevention (CDC. (2011). School health guidelines to promote healthy eating and physical activity. MMWR. Recommendations and reports: Morbidity and mortality weekly report. *Recommendations and reports/Centers for Disease Control, 60*(RR-5), 1.
[12] Griebler, U., Rojatz, D., Simovska, V., & Forster, R. (2014). Effects of student participation in school health promotion: a systematic review. *Health promotion international*, dat090.
[13] Busch, V., de Leeuw, J. R. J., de Harder, A., & Schrijvers, A. J. P. (2013). Changing multiple adolescent health behaviors through school-based interventions: a review of the literature. *Journal of school health, 83*(7), 514-523.
[14] Hoagwood, K., Burns, B. J., Kiser, L., Ringeisen, H., & Schoenwald, S. K. (2001). Evidence-based practice in child and adolescent mental health services. *Psychiatric Services*.
[15] Suldo, S. M., Gormley, M. J., DuPaul, G. J., & Anderson-Butcher, D. (2014). The impact of school mental health on student and school-level academic outcomes: Current status of the research and future directions. *School Mental Health, 6*(2), 84-98.
[16] Knopf, J. A., Finnie, R. K., Peng, Y., Hahn, R. A., Truman, B. I., Vernon-Smiley, M., ... & Hunt, P. C. (2016). School-based health centers to advance health equity: a Community Guide systematic review. American *Journal of Preventive Medicine, 51*(1), 114-126.

interventions that meet the needs of their students and staff, and are able to implement these interventions well. There is ample evidence that well-designed interventions may be no more effective than no intervention at all if they are not delivered with fidelity.[17] Given that most schools are already well-versed in reviewing data related to academic performance, increasing their capacity to collect and analyze health-related data could help support schools in making data-driven decisions about how to best implement the HSA in their particular context. While it is possible that some schools are currently using data to effectively monitor the effectiveness of their HSA-related efforts, it would be helpful for OSSE to support all schools in monitoring the quality and effect of their health programming. There are a number of existing models, such as Communities that Care and PROmoting School-Community-University Partnerships to Enhance Resilience (PROSPER), that have proved effective in helping communities to assess their needs, identify programs that are effective in addressing those needs, and collect and analyze data in order to monitor progress and make adjustments when needed. With a growing number of evidence-based programs and practices related to health promotion, many of which provide guidance on measuring program quality, it seems that equipping schools with the skills and knowledge to make data-driven decisions about health programming would be a wise investment. Given OSSE's current efforts in this area around school climate through the ongoing evaluation of Safe School Certification (in partnership with Child Trends), the extension of this work to student health practices is likely easy to accomplish.

Encourage schools to collect and analyze student health data. A critical aspect of improving student health is to track health over time in order to assess whether interventions are leading to their intended changes. The Fitnessgram® is one source of health data that is already being collected by DCPS and a handful of public charter schools. This tool allows schools to assess and track student fitness, through measures of muscular strength and endurance, aerobic capacity, body composition, and flexibility. Another source of health data could be the Universal Health Certificates that are mandated by the HSA, which document relevant data such as weight, height, and certain chronic health conditions like asthma and diabetes. Other sources of health data could include school climate surveys like the U.S. Department of Education's School Climate Survey (EDSCLS), risk behavior surveys like the CDC's Youth Risk Behavior Surveillance System (YRBS) or the Communities that Care® Youth Survey. OSSE may want to work with schools and LEAs to identify relevant sources of data that are both feasible to collect and provide actionable information. OSSE can then provide school staff with the training and support to analyze the data in order to monitor their ongoing progress toward improving student health.

Continue to invest in school gardens and disseminate evidence-informed best practices to help schools use gardens to promote health and academic outcomes. Our finding that school gardens are associated with increased nutrition knowledge is promising. While we cannot say that school gardens actually increase nutrition knowledge, there is a growing body of research that suggests school gardens can potentially improve student health behaviors and academic performance. For example, a recently published review of 12 studies looking at the effects of school gardens found positive changes related to students' fruit and vegetable intake.[18] In addition to reviewing the survey data tracking attitude and behavior change among students and teachers collected by 2015-16 school year grantees, OSSE may want to consult with schools to identify the barriers to establishing and integrating gardens into school culture. This could inform the development of creative solutions to overcome those challenges so that more students can be exposed to school gardens.

[17] Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American journal of community psychology, 41*(3-4), 327-350.
[18] Berezowitz, C. K., Bontrager Yoder, A. B., & Schoeller, D. A. (2015). School gardens enhance academic performance and dietary outcomes in children.*Journal of School Health, 85*(8), 508-518.

Evaluation of the District of Columbia Healthy Schools Act:

School Staff Perceptions of the Healthy Schools Act

Overview

This brief describes the perceptions of school staff from 49 schools across the District of Columbia related to the Healthy Schools Act (HSA), which is intended to improve the health and wellness of students attending public and public charter schools. In May 2016, we asked school staff to describe how well-equipped they felt to implement the Healthy Schools Act. We also met with staff from the Office of the State Superintendent of Education (OSSE) and members of the Healthy Youth and Schools Commission (HYSC) in order to understand their perspectives on the successes and challenges of implementing the Healthy Schools Act since it was enacted in 2010. The findings from these data highlight opportunities for OSSE to increase schools' capacities to support student wellness by identifying successful strategies and ensuring that school staff have the necessary knowledge, skills, and resources to promote the wellness of all students in the District of Columbia.

Key Findings

- While survey respondents felt well-informed about the HSA, they were most familiar with the nutrition components and generally did not feel well-informed about OSSE's expectations for schools.
- Survey respondents perceived the annual School Health Profiles to be burdensome and would like more actionable feedback from OSSE.
- Although survey respondents saw OSSE as a source of relevant and timely information about HSA-related resources, they viewed HSA funding as insufficient and sometimes accompanied by burdensome requirements.
- Survey respondents who reported that their school is receiving HSA-related grant funding from OSSE also tended to report greater participation in HSA-related activities.
- Respondents from public charter schools typically reported more positive perceptions of the HSA than respondents in other DC public schools.

Introduction

The District of Columbia Healthy Schools Act (HSA; D.C. Law 18-0209) was passed in 2010 to help stem a growing epidemic of childhood obesity in the District of Columbia and to more broadly improve the health and health-related outcomes of the District's students. The HSA outlines requirements for schools in the District of Columbia related to nutrition, physical activity, and health education, including guidance on the nutritional content of food that is made available to students, and the amount of time students spend learning about health and participating in physical education. The HSA also stipulates that schools distribute information related to the food that is served to students, as well as develop and distribute local wellness policies. Schools were required to comply with the HSA starting in school year 2010-11. Certain requirements, such as required minutes for physical and health education in the 2014-15 school year, increased over time.

In order to assess how the HSA influences health policies and practices in the District of Columbia, it is important to understand the experiences of the school staff implementing the Act. Researchers have identified factors that promote high-quality adoption of innovative policies, programs, and practices, which range from selecting the right staff to providing adequate training and resources, ensuring that organizational policies and practices support (rather than hinder) the changes.[1] Child Trends administered a brief survey and conducted interviews with individuals working in schools at the end of the 2015-16 school year to better understand their experiences with the HSA. We asked them to assess their knowledge of the HSA and their understanding of their particular role in implementing it, their perceptions of its implementation in their own school, and their thoughts about the supports that OSSE provides to schools when it comes to improving student health. This report summarizes the responses to the survey and interviews. It also reflects the perceptions of OSSE staff and Healthy Youth and Schools commissioners, a group of individuals appointed by the mayor to inform city leadership on issues relevant to the HSA, who participated in focus groups.

This brief is one in a series of three that describe the findings from an evaluation of the Healthy Schools Act of 2010:

1. *Evaluation of the District of Columbia Healthy Schools Act: Descriptive Trends in Compliance Over Time*
2. *Evaluation of the District of Columbia Healthy Schools Act: Health Knowledge and Academic Outcomes Over Time*
3. *Evaluation of the District of Columbia Healthy Schools Act: School Staff Perceptions of the Healthy Schools Act*

Sample and Methods

Respondents to the survey included 49 staff members, the majority of whom reported working in the District of Columbia Public Schools (DCPS; see Table 1 for additional sample characteristics). All percentages included in this brief are based on the number of staff who responded to a given item; the number of respondents who did not respond ranged from three to four. Though the final analytic sample for the quantitative analyses included 49 staff members, open-ended responses from all 60 school staff members who responded to the survey in our qualitative dataset were included in qualitative analyses. The five school staff who participated in telephone interviews held a range of different positions in their schools, which were a mix of public (n=2) and public charter (n=3) as well as elementary (n=3), middle (n=1), and middle/high schools (n=1). Eight OSSE staff members who work on HSA-related initiatives and five members of the Healthy Youth and Schools Commission participated in focus groups.

The staff survey, which was administered online and distributed by OSSE via their weekly electronic newsletter, consisted of 30 questions that asked respondents about their background (school and position) and experiences with the HSA.

Qualitative data were collected through survey questions and interviews. The online survey included three open-ended questions (see Appendix A) asking respondents to describe their understanding of and experiences

[1] Bertram, R. M., Blase, K. A., & Fixsen, D. L. (2015). Improving programs and outcomes implementation frameworks and organization change. *Research on Social Work Practice, 25*(4), 477-487.

with implementing the HSA, and to identify areas for improvement. We also conducted five 15- to 30-minute telephone interviews (see Appendix B) with school staff who indicated on the survey that they would be willing to participate in a follow-up interview. In addition to speaking with school staff, we held focus groups with OSSE staff members (see Appendix C) and members of the Healthy Youth and Schools Commission (see Appendix D).

While these data provide useful information about how school staff perceive the HSA, there are limitations to the data including the fact that responses are self-reported and represent a subset of school staff that were motivated enough to take the survey.

Table 1. Characteristics of survey sample (n=49)

Characteristic	Number (Percent)
Sector	
DCPS	27 (55.1%)
Public charter school	22 (44.9%)
Level	
Elementary	20 (45.5%)
Middle	7 (15.9%)
High	6 (13.6%)
Elementary + middle	8 (18.2%)
Middle + high	2 (4.6%)
Alternative	1 (2.3%)
Role	
Administrator	26 (53.1%)
Health or PE instructor	14 (28.6%)
Other instructional role	9 (18.4%)
OSSE HSA-related grant funding*	
Received grant	18 (36.7%)
Did not receive grant	8 (16.3%)
Not sure	23 (46.9%)

*This refers to whether school staff believe their school has received funding from OSSE for HSA-related activities. It is possible that some staff have an inaccurate understanding of the funding their school receives.

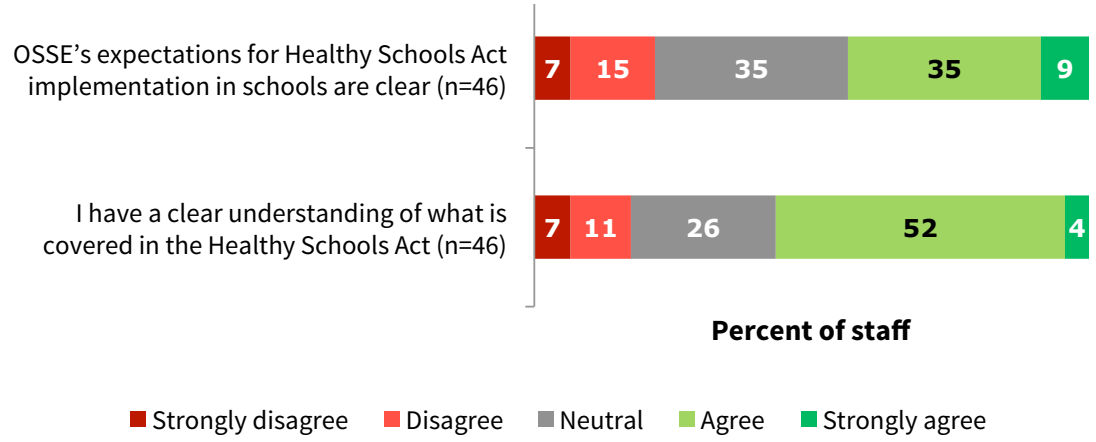
General Findings

In this section, we present our general findings organized into three topic areas: knowledge of the HSA, school support and buy-in, and support provided by OSSE.

Knowledge of the Healthy Schools Act

The majority (56 percent) of survey respondents either agreed or strongly agreed that they have a clear understanding of what is covered in the HSA (see Figure 1). When we asked whether OSSE's expectations for schools related to implementation of the HSA are clear, fewer than half (44 percent) either agreed or strongly agreed (see Figure 1). This suggests that many staff do not have a clear understanding of the Act itself, and most believe that OSSE's expectations are not sufficiently clear. In addition, approximately one quarter to one third of survey respondents neither agreed nor disagreed with the statements.[2]

Figure 1. Knowledge of the Healthy Schools Act



[2] In an attempt to understand whether neutral responses might reflect a lack of buy-in, lack of knowledge, or ambivalence about the question itself, we examined the comments that respondents who selected the neutral option made to the two open-ended survey questions about respondents' overall experiences with the HSA. In all cases, we found that the responses to the open-ended survey questions represented a mix of perspectives. As a result, we caution against interpreting neutral responses as either positive or negative.

In the following section, we summarize some of the responses to open-ended survey questions and comments made in interviews to help us better understand respondents' experiences with the HSA.

Slightly more than half of respondents reported being well-informed about the Healthy Schools Act; however, many would like more information. Most survey and interview respondents indicated that they had a clear understanding of the HSA. However, several school staff highlighted in interviews and open-ended survey questions that they were not familiar with the content of the HSA, as demonstrated below.

> When asked to describe experiences with the HSA, one school staff member stated *"We don't have a Healthy Schools Act Program at our school."*
>
> Another school staff member stated *"I have heard of HSA and serve on the Wellness committee, but have no further information on HSA."*

This lack of awareness is something that OSSE staff commented on as well.

> When asked about the level of awareness of the HSA among school staff, one OSSE staff member remarked, *"I find that with my work, principals and front office staff kind of know about it, but not all teachers know. And we'll have trainings and say, 'Who's heard of the Healthy Schools Act?' and only like half of the people's hands get raised."*

Respondents viewed the Healthy Schools Act as an effort to improve student wellness although several school staff noted that the rigid requirements can make implementation challenging. Perceptions of the HSA were somewhat mixed. One fifth (20 percent) of respondents volunteered positive remarks about the HSA in open-ended survey questions and during interviews, many of them emphasizing how the Act is focused on improving student health. However, about a third (30 percent) highlighted perceived inadequacies that they thought should be addressed, and an additional 10 percent remarked on their dissatisfaction with aspects of the Act. The comments below illustrate respondents' perceptions.

> When asked to describe her experience with the HSA, one school staff member stated, *"I feel privileged to be a part of this progressive program. I feel like a part of a community of educators trying to do all the right things for our students to be healthier and live more sustainably."*
>
> In contrast, another staff member said of the HSA, *"I believe that we're philosophically in the right place, even without that heavy-hand stick […] I would be very confident that we would do the right thing; we would encourage kids to be active, model the right behavior […] I feel like there's a way in which [the HSA] limits us. If we didn't have to follow it, we probably would still be in the right place but have a little more flexibility."*

Respondents were most familiar with the nutrition components of the Healthy Schools Act. Among survey and interview respondents who commented about their understanding of the HSA, staff were most aware of efforts to encourage healthy eating, and their comments commonly focused on restrictions on what foods can be offered in school. This focus in the schools on the nutrition aspects of the HSA was also mentioned in the OSSE staff focus group.

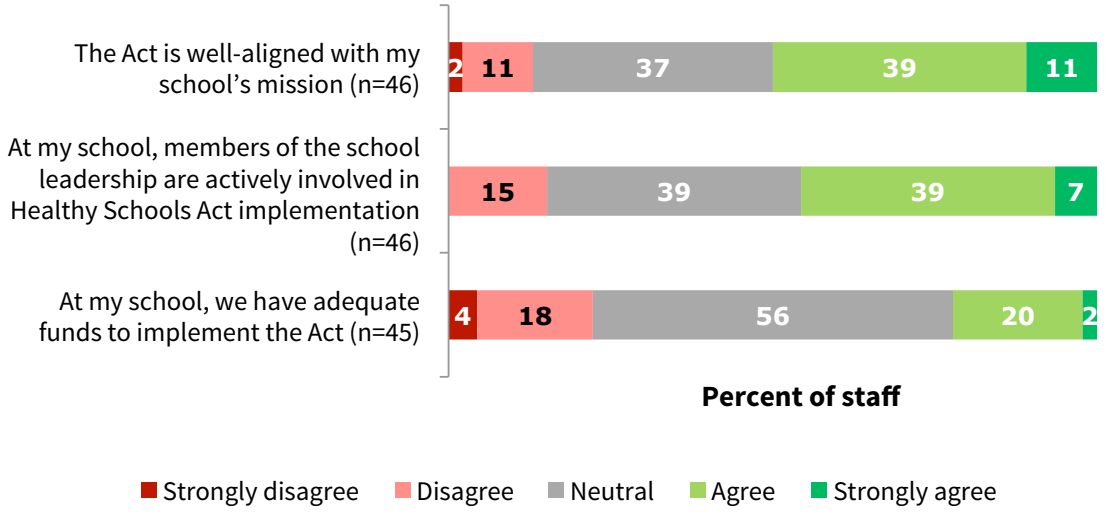
> When asked to describe the HSA, one interview participant stated, *"I don't know everything about it, but I do know that once in school, children are not allowed to have access to foods, sugary drinks that are not good for them—so like candy, soda, sugary drinks, chips, things like that—and that they're supposed to have at least a fruit, and a vegetable, and milk—a well-balanced meal—offered at all the school meal times."*
>
> Another interview participant stated, *"[The Healthy Schools Act is] mostly nutrition-focused […] I guess I'm selling it a little short because it does have an educational component including physical activity and other sort of nutrition education in our curriculum, which we do anyway. That's why I don't really think of it as Healthy Schools Act-focused; it's just a part of who we are at our school […] but I know it's there."*

One OSSE staff member's remarks mirrored those of the school staff noting, *"I think in terms of school nutrition, they have it down. They know what's required of them in terms of breakfast, lunch, and snacks. They got that down. As far as many of the other requirements, they're working on them."*

School support and buy-in

In order to better understand how the HSA is implemented in schools, we asked school staff several questions about how their school supports the implementation of the HSA. In particular, we asked how the HSA aligns with their school's mission, whether their school leadership is actively involved in implementation, and whether their school has dedicated adequate funds to implement the HSA (see Figure 2). Half of survey respondents agreed or strongly agreed that the HSA is well-aligned with their school's mission, although a small minority (13 percent) felt that it does not align with their mission. Similarly, almost half of respondents (46 percent) reported that their school leadership is actively involved in implementation of the HSA, with a small percentage of respondents (15 percent) noting that their school leadership does not take an active role. When asked about resources to implement the HSA, only 22 percent of respondents indicated that their school has adequate funds, and just as many staff said their school does not have adequate funds. As with the questions about staff's knowledge of the HSA, at least one third of respondents – and, in the case of adequate funding, one half of respondents – indicated that they neither agreed nor disagreed with the statements.[3]

Figure 2. Staff perceptions of school support and buy-in for the Healthy Schools Act



In the following section, we summarize some of the comments made in interviews and as responses to open-ended survey questions to help us better understand respondents' experiences with school support and buy-in for the HSA.

When it comes to the Healthy Schools Act, some respondents reported a lack of buy-in from parents, and colleagues. While half of survey respondents agreed that the goals of the HSA are aligned with the mission of their school, some perceived a lack of commitment at their school to particular components of the HSA, especially the restrictions on foods that can be offered at school and the emphasis on physical activity. Similarly, OSSE staff remarked on the challenge of achieving buy-in from schools, with one staff member noting that it is particularly challenging at the middle- and high-school levels.

[3] In an attempt to understand whether neutral responses might reflect a lack of buy-in, lack of knowledge, or ambivalence about the question itself, we examined the comments that respondents who selected the neutral option made to the two open-ended survey questions about respondents' overall experiences with the HSA. In all cases, we found that the responses to the open-ended survey questions represented a mix of perspectives. As a result, we caution against interpreting neutral responses as either positive or negative.

One interview participant described a situation in which staff at her school sell candy to students as a fundraiser, highlighting a lack of staff buy-in related to the nutrition components of the HSA at their school. *"Parents will come in late to school with their kids and buy lunch for their kids at the candy cart. And the [school staff] that are running the candy cart know that. I think it's [the HSA] undermined."*

Another respondent to the school staff survey also noted some challenges at their school related to getting buy-in from parents, saying, *"I am for the Healthy Schools Act. We tend to follow it dutifully. However, we receive constant push back from the parents. I believe we would benefit from clear policies/directives on what type of foods students are allowed to bring to school. Parents pack lots of junk food which in turn students share with others creating lots of animosity and issues among students and parents."*

Despite these examples of challenges that schools face in achieving buy-in from staff and parents, members of the Healthy Youth and Schools Commission noted an increase in support for the HSA among schools, particularly public charter schools.

A lack of buy-in from school leadership can present challenges in implementing the Healthy Schools Act. Lack of buy-in from school administrators was raised as an implementation challenge by OSSE staff and school staff. OSSE staff explained that when school leadership understands the connections between HSA-related initiatives and academic achievement, those schools are often more engaged in health and wellness activities.

An OSSE staff member stated, *"If the administration is on board, you'll see it in the school. You'll see the staff wellness […] If the head understands the correlation between eating healthy and physical activity and what that does to test scores, you see the difference in the school."*

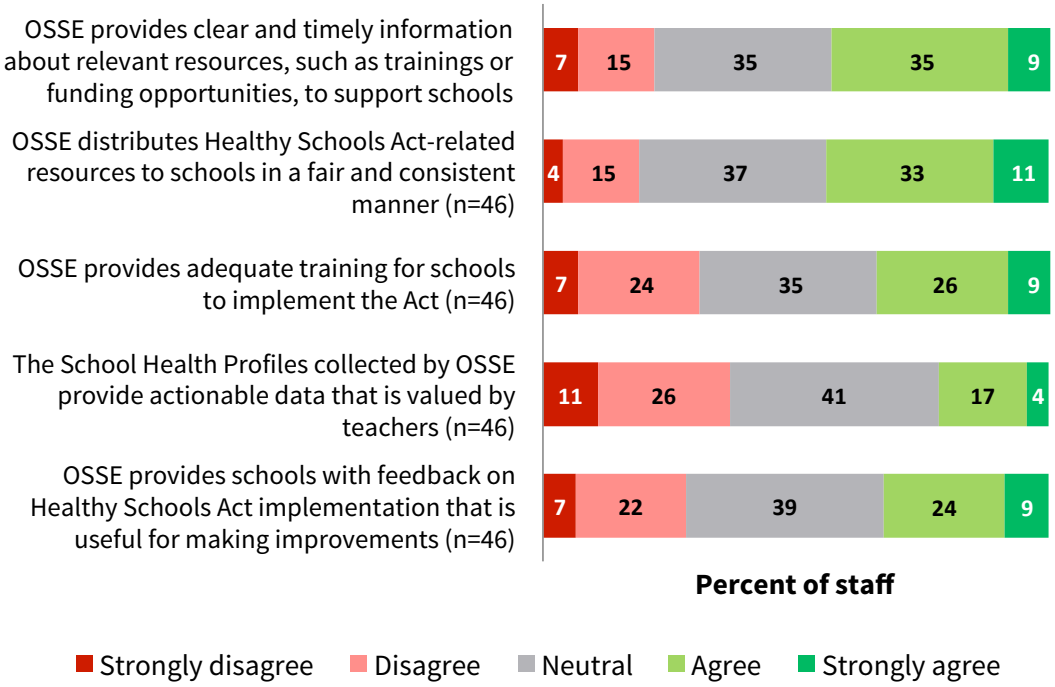
However, not all school administrators demonstrate high levels of buy-in, as demonstrated by the remarks of one survey respondent. *"I have been introduced to the subject matter [the Healthy Schools Act] on multiple occasions, however its actual bullet points are unknown to me and tend to fall by the wayside in the context of the school day and I believe this notion is also held by the school's administration and staff."*

Support from OSSE

In order to understand how school staff perceive the supports that are provided by OSSE, we asked a series of questions related to the funding, resources, training, and HSA-related information that OSSE provides to schools (see Figure 3). Survey respondents were most positive when asked about the resources that OSSE provides, such as grant funds and programs like farm trips, and the way in which those resources are distributed. Perceptions of OSSE-

sponsored trainings and HSA-related feedback from OSSE were mixed – in each case nearly a third of responses were positive, a third negative, and a third neutral.[4] Survey respondents were least positive in their perceptions of the School Health Profiles.[5] Among school staff who responded to the survey, 37 percent disagreed or strongly disagreed that profiles provided actionable data valued by teachers.

Figure 3. Staff perceptions of OSSE-provided support related to the Healthy Schools Act



In the following section, we summarize some of the comments made in interviews and as responses to open-ended survey questions to help us better understand respondents' experiences with OSSE's support of schools in implementing the HSA.

While respondents saw OSSE staff as helpful in accessing HSA-related resources, they would also like more proactive communication from OSSE staff. School staff tended to have positive comments about their interactions with OSSE staff, noting that they have helped to facilitate schools' access to HSA-related resources. However, some school staff noted that they would like more proactive communication from OSSE.

> Several respondents made positive remarks about OSSE staff with whom they have interacted. For example, one respondent stated, *"My OSSE resources, I have to say, are superb. The people that I work with at OSSE for National School Lunch Program contacts are amazing. […] The biggest support I've gotten is the ability to pick up the phone and call somebody who knows this material really well and will always answer my question in a thoughtful, helpful, intelligent way."*

[4] In an attempt to understand whether neutral responses might reflect a lack of buy-in, lack of knowledge, or ambivalence about the question itself, we examined the comments that respondents who selected the neutral option made to the two open-ended survey questions about respondents' overall experiences with the HSA. In all cases, we found that the responses to the open-ended survey questions represented a mix of perspectives. As a result, we caution against interpreting neutral responses as either positive or negative.

[5] All public schools in the District of Columbia submit a School Health Profile survey to OSSE on an annual basis to document their health policies and practices. In the 2015-16 school year, the survey contained 50 items and was approximately 20 pages in length, covering health services, health education instruction, physical education instruction, school nutrition and local wellness policy, distribution of information, and environment.

Another respondent noted, *"Central office support is excellent. Staff is very knowledgeable and supportive."*

Most comments regarding OSSE's implementation feedback focused on suggested improvements. For example, one respondent requested that OSSE *"provide newsletters (bi-annual) as a reminder of the expectations as well as schools making the mark."*

While respondents viewed Healthy Schools Act funding as helpful, many also described burdensome requirements that create barriers to accessing OSSE resources. School staff expressed an appreciation for the funding and programming offered by OSSE in support of the HSA. However, most of the respondents who mentioned grants and other funding described challenges to obtaining or utilizing those funds. OSSE staff reported challenges in distributing HSA grants due to a lack of applicants.

When discussing meal reimbursement, one respondent noted, *"Our reimbursement amount is pretty small[…] it amounts to $6,000 a year, perhaps—which is nice, don't get me wrong—but if I were to run a bake sale, I would make $150 to $175 in half an hour."*

One respondent mentioned onerous restrictions on staffing requirements for school garden grants as a barrier to participating, noting that, *"The grant opportunities, I have to say, look really good at first, and then when you read it more carefully, they often have very high administrative burden. […] There was a garden grant that we were quite interested in at one point. We were doing a process that would have been, really, very appropriate for that grant, but it required that you allocate a staff person a quarter time to your garden […] that's a little bit burdensome. […] I don't have a quarter of a [person] to put solely to managing the garden. So, you know, thanks but no thanks."*

Many survey respondents indicated a desire for additional OSSE-sponsored trainings related to the HSA. Some survey respondents expressed some dissatisfaction with OSSE-sponsored trainings, with several noting that they would like to see more training opportunities. OSSE staff, on the other hand, noted that it was a challenge to provide school staff with professional development opportunities. In particular, while acknowledging barriers related to teachers' busy schedules and staff turnover, OSSE staff noted that professional development trainings related to the HSA have often been poorly attended in the past. The fact that school staff and OSSE staff have different perspectives on the availability of trainings suggests that information about HSA-related trainings is not reaching all interested school staff.

When asked what OSSE could do better, one survey respondent noted, *"There needs to be a clear training on what the Healthy Schools Act entails and [the training] needs to be clearly disseminated to schools and administration."*

Other respondents were unclear about what OSSE does to support schools in implementing the HSA. One interview participant noted, *"I don't know what OSSE does as far as helping us implement the Healthy Schools Act. [...] I do not know that OSSE has come in and done any trainings for teachers and staff. […] I know that we have a lot of new people on staff that are new to DCPS, including our administration, so I don't know if they are aware of the law or the Act themselves. […] I don't know if OSSE does a check-up to see how each school is doing."*

An OSSE staff member described her challenges with professional development, noting, *"We'll get people to show up, but for me […] maybe we'll gear something towards 30 to 40 people and we'll get 10 to 15. And those 10 to 15 people are really engaged. But I struggle getting past that number of teachers or administrators to come or nonprofits to be involved."*

Survey respondents perceived School Health Profiles to be burdensome and would like more actionable feedback from OSSE. Most school staff did not have strong feelings about the School Health Profiles or the implementation feedback they receive from OSSE . However, when respondents did comment on the School Health Profiles, their remarks tended to focus on requests for OSSE to decrease paperwork. On the other hand, when they commented on the implementation feedback, it was generally to ask for more actionable feedback.

> Some respondents noted that the School Health Profiles are burdensome. For example, one respondent stated, *"Filling out the survey every year is tedious and time consuming."* Another requested that OSSE *"decrease paperwork/survey."*
>
> One respondent remarked on a perceived imbalance between the information that schools receive about the requirements of the HSA and information that would be useful for implementation. When asked what OSSE could do to improve implementation, the respondent stated, *"There are requirements mandated by it but not a lot of information for schools that we can use."*
>
> Another respondent asked for *"more data knowledge and more information on how to implement the different ways to incorporate health and fitness."*

Differences by role, grant status, and school sector

When working to support implementation of new policies, programs, and practices across a large system, it is often most effective to provide targeted resources to those areas that would benefit most. In order to understand whether there are patterns in terms of who is more or less-well prepared to implement the HSA, we examined the survey data by different characteristics such as respondent role, reported grant status (i.e., whether the respondent believes that his or her school receives HSA-related funding from OSSE), and school sector to see if there were any differences in their reported experiences with the HSA that could help to distribute resources and trainings to schools in a way to effectively ensure that each school has the capacity implement the Act.

There were few differences in responses based on staff role or school level. Although school administrators reported being involved in more HSA-related activities than other school staff, including Health/PE teachers, there were no other significant differences when we compared responses to the staff experiences scales based on staff roles. There were no significant differences in any of the scales based on school level (e.g., elementary, middle, high, etc.).

School staff who did not know whether their school received Healthy Schools Act-related grants tended to report the most negative experiences with the HSA. Respondents who indicated that they did not know whether their school received HSA-related OSSE grant funding had lower scores on all three scales, suggesting that schools where staff do not have a clear understanding of what supports their school is receiving tend to feel less knowledgeable about and prepared to implement HSA. These staff also report lower levels of implementation in their schools, and less support from OSSE to implement the HSA. They were also the least likely to report that their school had increased health education as a result of the HSA.

School staff who report that their school is receiving Healthy Schools Act-related grant funding from OSSE tended to report greater participation in Healthy Schools Act-related activities. In sharp contrast to respondents who did not know whether their school receives HSA-related OSSE grant funding, participants who said their school received a grant reported feeling more knowledgeable about and prepared to implement the HSA. They also reported higher levels of implementation in their schools, and more support from OSSE. They were involved in significantly more activities than those from schools not receiving grants and those who did not know whether their school receives a grant, suggesting that receiving monetary supports encourages schools to participate in more HSA activities.

Respondents from public charter schools typically reported more positive perceptions of the Healthy Schools Act. Overall, respondents' ratings of their personal understanding of and preparation for implementing the HSA at their school, their perception of how their school implements the HSA, and the level and usefulness of support provided by OSSE were higher among staff at public charter schools than among staff at DCPS schools. Respondents from public charter schools were also more likely to report that their school had increased physical education due to the HSA than were staff at DCPS schools.

Success stories

In general, staff felt that their schools had made progress in their efforts to promote student health. When we asked about processes and programs that have been successfully incorporated in schools, approximately half of survey respondents believed that their school had made significant improvements in nutrition services, physical education, and/or health education. Responses collected through open-ended survey questions and interviews described activities including school gardens and farm visits as successes. This section highlights some of the successes that were shared by school staff. We have also incorporated stories that were shared by OSSE staff and Healthy Youth and Schools Commission members about specific successful activities and strategies happening in schools.

Schools have experimented with a number of ways to increase students' consumption of healthy foods. Beyond a general sense that foods served in the school cafeterias are healthy, respondents shared a number of initiatives that are being implemented, including a partnership with a local organization that offers cooking demonstrations and distributes food in the community, a supper program, and summer taste tests to engage students in selecting a food service vendor. School staff also mentioned farm-to-school and school garden activities as successful strategies for getting students to eat more healthy foods.

Strawberries and Salad Greens Day has been generally well received. Three interview participants praised Strawberries and Salad Greens Day – a day on which schools provide locally grown strawberries and/or greens to students to celebrate local foods. Some schools combine this with educational activities related to local food sources and the health benefits of eating fruits and vegetables. One interviewee called the initiative "a big hit," another mentioned that participating has helped their school support other health-related efforts, and another saying "[the students] love the fresh strawberries we have in the garden, and that fits in in well with OSSE's initiative to have strawberries and greens in the cafeteria." OSSE staff confirmed that this event has been successful, saying that it has been increasingly popular and is helpful in getting the word out about the HSA.

Healthy Schools Act implementation has helped to support school gardens. Some staff described getting new gardens in their schools that have introduced the students to new foods or have improved the school's composting efforts. These points echoed comments from OSSE staff who mentioned that they have seen a drastic increase in the number of schools that employ staff to serve as the point of contact for the school gardens. The Commissioners also spoke about school gardens as a success. This success is remarkable given that the HSA does not require schools to establish gardens; one school staff member felt this was attributable to organizations, parents, and community members perceiving that work as valuable and worthy of support.

Schools are implementing strategies to engage both community organizations and parents. OSSE staff gave some examples of successful strategies they were aware of with regard to partnerships and parent engagement. They described partnerships that schools had formed with physical activity- and nutrition-focused community organizations that work with students and their parents.

For example, one partner conducted classes on how to cook on a Supplemental Nutrition Assistance Program (SNAP, or food stamps) budget. Other successful strategies highlighted by OSSE staff included an event called Fuel Free Friday that encourages kids and their parents to get to school via bike, walking, etc.; parent cooking nights; and dance competitions. They also mentioned instances where parents have been able to share in the school resources, such as being invited to use the school swimming pool with their children and being able to take home some of the food produced in the garden in return for helping to maintain it.

Other successes listed by OSSE staff and Commissioners: OSSE staff listed other successes, such as 100 percent completion of Local Wellness Policies, a general increase in the number of minutes of physical education offered by schools and school's after-school wellness nights for the school community. One OSSE staff member also praised another school's "Water Wednesdays" initiative, during which teachers could only drink water in front of the students. This campaign stimulated conversations about water between the teachers and the students, who would ask the teachers what they were drinking. Members of the HYSC also listed the HSA's role in helping schools surmount resistance and barriers to having breakfast in the classroom and competitive grant and funding opportunities as successes. The HYSC members also remarked that they thought schools' environmental literacy had improved. However, they did not describe any specific changes and very few school staff mentioned this aspect of the HSA in the survey or interviews.

Conclusions and Recommendations

As the HSA enters into its sixth year of implementation, important strides have been made regarding the nutrition-related components of the HSA. However, there is room to improve the health and wellness of students in the District of Columbia. While this report is based on responses from a subset of school staff who were motivated enough to complete a voluntary survey, the findings are useful for considering ways in which schools might be supported as they continue to improve their compliance with the HSA. Despite perceived challenges, such as the significant time required to comply with reporting requirements, school staff expressed a commitment to promoting student wellness. To that end, they emphasized a need for practical information that they can put to use in enhancing their schools' health efforts and additional opportunities for related health-related professional development. In order to leverage these findings, we provide some suggestions for next steps.

Establish an HSA coordinator at each school. Overall, the report findings highlight the fact that many motivated staff members are unclear about the role that the Healthy Schools Act plays in their schools' health initiatives. This is not surprising, given that urban school districts often have high staff turnover and the impact of newly enacted legislation often fades over time without sustained and systematic education efforts. However, it shows that a more concerted effort is needed to ensure that school staff at all levels—from principals to classroom teachers to food service staff—are familiar with the main areas of the HSA and can clearly draw connections between the HSA and their own roles and responsibilities. One way to do this would be to have each school designate one staff member as their HSA coordinator. Having a single point of contact would make it easier for other school staff to know who to contact when they have questions about the HSA. In addition, having a single point of contact increases accountability and would streamline communications between OSSE and the schools.

Work with schools to revise the School Health Profiles. When it comes to sharing information, another challenge brought up by school staff is the School Health Profiles. Very few respondents were satisfied with the profiles, and several interview participants remarked on how onerous the profiles are to complete. While OSSE has made efforts in recent years to streamline their data collection efforts related to the requirements of the HSA, it is possible that additional steps could be taken, in collaboration with schools and LEAs, to make them more useful for schools. A first step could be to conduct conversations with various stakeholders to better understand the process that schools go through to complete the profiles in order to see if additional guidance could help to reduce the burden of compiling the information. Additionally, a better understanding of what information schools would find beneficial could enable OSSE to revise the profiles in a way that makes them actionable for schools in setting priorities and tracking improvements over time in a meaningful way. For example, the School Health Profiles could be used by schools as a tool to develop an action plan for HSA implementation, and could then be shared with OSSE in order to plan technical assistance such as trainings. Finally, the School Health Profiles could be used to target grant funding to ensure that grant programs are in fact resulting in increased capacity in schools.

Create opportunities for peer-to-peer learning so that schools can share lessons learned and work collaboratively to improve student health across the District of Columbia. The findings presented here highlight some successes that could be leveraged to further engage schools and spread best practices. There appears to be variation in health practices and HSA implementation across schools, but these differences could be a source of

innovation and peer support. In particular, school staff at public charter schools generally reported more positive experiences with the HSA. OSSE could consider focusing more explicitly on its potential as a convener, bringing various school and District stakeholders together to share successful strategies and help troubleshoot challenges. OSSE could fill this role through conventional methods such as meetings and other in-person events, or through more innovative strategies that reduce the burden of participation on school staff. For example, electronic forms of communication and social media could facilitate easier information-sharing. One way OSSE could support peer learning is to establish a professional learning community for HSA implementation, an approach to peer learning that has been shown to improve teaching practice and student performance.[6]

[6] Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and teacher education, 2*4(1), 80-91

Conclusions and Recommendations

As the Healthy Schools Act (HSA) enters its sixth year of implementation, important strides have been made regarding the nutrition-related components of the HSA. However, there is room to improve the health and wellness of students in the District of Columbia. In this report, we have reviewed descriptive analyses of schools' compliance with the HSA from school year 2012-13 through school year 2015-16, as well as analyses of the associations between schools' compliance with the HSA and students' health knowledge, academic performance, and attendance. We also summarized findings related to school staff perceptions of HSA implementation.

On average across each of the 4 school years, schools were compliant with the majority of the HSA's requirements. However, some schools reported full compliance while a few schools reported compliance with fewer than one third of the items in the HSA Compliance Index. The analyses summarized in this report also reveal recent declines in average compliance scores that highlight the need for continued guidance, oversight, and provision of resources to help schools meet HSA requirements. Our conversations with selected school staff uncovered potential avenues to improving implementation of the HSA, emphasizing a need for practical information that schools can put to use to enhance their efforts to improve students' health and health-related professional development.

Due to data limitations, we cannot predict with confidence how or if improving HSA implementation will directly affect student outcomes; we found no significant associations between compliance with the HSA and student health knowledge, math and reading achievement, truancy, or in-seat attendance. We did find that schools with a garden—which is not a required practice of the HSA—had stronger student health knowledge than schools without a garden. It is possible that implementation of the HSA, or other school health practices and policies, have impacted other outcomes that were not assessed in this report, most notably student health outcomes. However, the finding that school gardens hold promise for increasing students' nutrition knowledge suggests that schools' efforts to promote health can make a difference. In order to leverage these findings we offer some suggestions for next steps.

1. **Refine the HSA to strengthen alignment with accumulating evidence about school health policies and practices that are effective in improving student outcomes.** A theory of change is most useful for improving outcomes when it reflects the best evidence. Given that we found no associations between HSA compliance and student outcomes, it may be useful to refine the Healthy Schools Act's theory of change so that it aligns more closely with the most current evidence of school-based health interventions' effects on health and academic outcomes. A number of relevant systematic reviews have been published since the passage of the HSA in 2010, including comprehensive guidance from the Centers for Disease Control and Prevention.[1] In reviewing new evidence, it is likely that additional strategies for improving the health of the District's students will be identified for inclusion in the Healthy Schools Act. Some areas with particularly strong evidence related to health and

[1] Centers for Disease Control and Prevention (CDC. (2011). School health guidelines to promote healthy eating and physical activity. MMWR. *Recommendations and reports: Morbidity and mortality weekly report. Recommendations and reports/Centers for Disease Control, 60*(RR-5), 1.

academic outcomes include: student participation in the development, implementation, and evaluation of school-based health initiatives;[2] tailored plans for schools that are based on a comprehensive needs assessment;[3] access to school-based mental health services;[4,5] and access to school-based health centers.[6]

2. **Ensure that the HSA represents a balance of incentives, penalties, and supports that represents the District of Columbia's priorities for improving student outcomes.** Of HSA's provisions, schools demonstrated greatest compliance with—and greatest awareness of—the nutrition requirements, including providing students with locally-sourced food, cold and filtered water, and appropriate vending machine options. It is important to note that these nutrition requirements are the only component of the HSA that are reinforced by financial incentives. For example, the HSA dictates that schools that provide locally-sourced food to students are to be reimbursed at a higher rate than they would for foods sourced outside the region.[7] Furthermore, schools that are not compliant with the nutrition mandates set out in the HSA could face a penalty of up to $500 per day. It may be that these types of penalties and supports have encouraged schools to prioritize certain HSA provisions over others.

3. **Establish an HSA coordinator at each school.** Overall, the report findings highlight the fact that many motivated staff members are unclear about the role that the Healthy Schools Act plays in their schools' health initiatives. This is not surprising given that urban school districts often have high staff turnover and the impact of newly enacted legislation often fades over time without sustained and systematic education efforts. However, it shows that a more concerted effort is needed to ensure that school staff at all levels—from principals to classroom teachers to foodservice staff—are familiar with the main areas of the HSA and can clearly draw connections between the HSA and their own roles and responsibilities. One way to do this would be to have each school designate one staff member as their HSA coordinator. Having a single point of contact would make it easier for other school staff to know who to contact when they have questions about the HSA. In addition, having a single point of contact increases accountability and would streamline communications between OSSE and the schools.

4. **Work with schools to identify and address barriers to using HSA-related grants to improve compliance with Physical Education minute requirements.** Currently, schools are required to submit a grant application in order to access most of the HSA-related funds available for increasing physical activity. While the current legislation requires that grant funds be made available through a competitive grant process, such as PAY Grants, it may be that the program or application requirements are too burdensome for some schools to satisfy. In addition to information gathered from school administrators during compliance visits, OSSE may want to conduct focus groups or interviews with schools to identify the barriers to accessing grants given that very few schools are compliant with the current requirements for minutes of PE instruction. OSSE may also leverage information collected from the six DC Physical Education and Health Education grantees to inform new efforts to support schools in increasing their compliance with the PE minute requirements.

5. **Continue to invest in school gardens and disseminate evidence-informed best practices to help schools use gardens to promote health and academic outcomes.** Our finding that school gardens are associated with increased nutrition knowledge is promising. While we cannot say that school gardens actually increase nutrition

[2] Griebler, U., Rojatz, D., Simovska, V., & Forster, R. (2014). Effects of student participation in school health promotion: a systematic review. *Health promotion international*, dat090.

[3] Busch, V., de Leeuw, J. R. J., de Harder, A., & Schrijvers, A. J. P. (2013). Changing multiple adolescent health behaviors through school-based interventions: a review of the literature. *Journal of school health, 83*(7), 514-523.

[4] Hoagwood, K., Burns, B. J., Kiser, L., Ringeisen, H., & Schoenwald, S. K. (2001). Evidence-based practice in child and adolescent mental health services. *Psychiatric Services*.

[5] Suldo, S. M., Gormley, M. J., DuPaul, G. J., & Anderson-Butcher, D. (2014). The impact of school mental health on student and school-level academic outcomes: Current status of the research and future directions. *School Mental Health, 6*(2), 84-98.

[6] Knopf, J. A., Finnie, R. K., Peng, Y., Hahn, R. A., Truman, B. I., Vernon-Smiley, M., ... & Hunt, P. C. (2016). School-based health centers to advance health equity: a Community Guide systematic review. *American Journal of Preventive Medicine, 51*(1), 114-126.

[7] Healthy Schools Act of 2010 D.C. Law 18-209, § 38-821.01(2010). Retrieved October 6, 2016 from: http://osse.dc.gov/sites/default/files/dc/sites/osse/publication/attachments/Healthy%20Schools%20Act%20as%20Amended%2020121231%20%282%29.pdf

knowledge, there is a growing body of research that suggests school gardens can potentially improve student health behaviors and academic performance. For example, a recently published review of 12 studies looking at the effects of school gardens found positive changes related to students' fruit and vegetable intake.[8] In addition to reviewing the survey data tracking attitude and behavior change among students and teachers collected by 2015-16 school year grantees, OSSE may want to consult with schools to identify the barriers to establishing and integrating gardens into school culture. This could inform the development of creative solutions to overcome those challenges so that more students can be exposed to school gardens.

6. **Offer trainings on implementation science to ensure that schools are able to select health-related interventions that meet the needs of their students and staff, and are able to implement these interventions well.** There is ample evidence that well-designed interventions may be no more effective than no intervention at all if they are not delivered with fidelity.[9] Given that most schools are already well-versed in reviewing data related to academic performance, increasing their capacity to collect and analyze health-related data could help support schools in making data-driven decisions about how to best implement the HSA in their particular context. While it is possible that some schools are currently using data to effectively monitor the effectiveness of their HSA-related efforts, it would be helpful for OSSE to support all schools in monitoring the quality and effect of their health programming. There are a number of existing models, such as Communities that Care and PROmoting School-Community-University Partnerships to Enhance Resilience (PROSPER), that have proved effective in helping communities to assess their needs, identify programs that are effective in addressing those needs, and collect and analyze data in order to monitor progress and make adjustments when needed. With a growing number of evidence-based programs and practices related to health promotion, many of which provide guidance on measuring program quality, it seems that equipping schools with the skills and knowledge to make data-driven decisions about health programming would be a wise investment. Given OSSE's current efforts in this area around school climate through the ongoing evaluation of Safe School Certification (in partnership with Child Trends), the extension of this work to student health practices is likely easy to accomplish.

7. **Encourage schools to collect and analyze student health data.** A critical aspect of improving student health is to track health over time in order to assess whether interventions are leading to their intended changes. The Fitnessgram® is one source of health data that is already being collected by DCPS and a handful of public charter schools. This tool allows schools to assess and track student fitness, through measures of muscular strength and endurance, aerobic capacity, body composition, and flexibility. Another source of health data could be the Universal Health Certificates that are mandated by the HSA, which document relevant data such as weight, height, and certain chronic health conditions like asthma and diabetes. Other sources of health data could include school climate surveys like the U.S. Department of Education's School Climate Survey (EDSCLS), risk behavior surveys like the CDC's Youth Risk Behavior Surveillance System (YRBS) or the Communities that Care® Youth Survey. OSSE may want to work with schools and LEAs to identify relevant sources of data that are both feasible to collect and provide actionable information. OSSE can then provide school staff with the training and support to analyze the data in order to monitor their ongoing progress toward improving student health.

8. **Work with schools to revise the School Health Profiles to accurately measure school compliance with the HSA *and* school performance with respect to student health outcomes.** While OSSE has made efforts in recent years to streamline its data collection related to the requirements of the HSA, additional steps could be taken—in collaboration with schools and LEAs—to collect data that is more useful for schools. The current system for assessing school performance related to the HSA is based on monitoring what schools are doing (i.e., outputs) without also monitoring how students are doing (i.e., outcomes). This sole focus on outputs rather than outcomes is a lost opportunity to determine the extent to which compliance with the HSA and related school

[8] Berezowitz, C. K., Bontrager Yoder, A. B., & Schoeller, D. A. (2015). School gardens enhance academic performance and dietary outcomes in children.*Journal of School Health, 85*(8), 508-518.

[9] Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American journal of community psychology, 41*(3-4), 327-350.

health practices and policies is associated with improved student outcomes. Furthermore, schools are expected to self-report their efforts around the HSA, with few systems to validate their responses. In some cases the person completing the SHP may have limited knowledge of the school's efforts or may face pressures to report greater compliance with the HSA than is taking place. Working with schools to identify a meaningful and easily collected set of school outputs *and* student outcomes could help schools assess and monitor the *effectiveness* of their HSA-related activities each year. Combining output data with outcomes data could serve dual purposes for OSSE by helping to identify effective health-related practices to be shared across schools while also identifying which schools might need additional implementation support. Engaging schools in the process would ensure school buy-in and promote more valid data collection.

9. **Create opportunities for peer-to-peer learning so that schools can share lessons learned and work collaboratively to improve student health across the District of Columbia**. The findings presented here highlight some successes that could be leveraged to further engage schools and spread best practices. There appears to be variation in health practices and HSA implementation across schools, but these differences could be a source of innovation and peer support. In particular, school staff at public charter schools generally reported more positive experiences with the HSA. OSSE could consider focusing more explicitly on its potential as a convener, bringing various school and District stakeholders together to share successful strategies and help troubleshoot challenges. OSSE could fill this role through conventional methods such as meetings and other in-person events, or through more innovative strategies that reduce the burden of participation on school staff. For example, electronic forms of communication and social media could facilitate easier information-sharing. One way OSSE could support peer learning is to establish a professional learning community for HSA implementation, an approach to peer learning that has been shown to improve teaching practice and student performance.[10]

[10] Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and teacher education, 24*(1), 80-91

Chapter 2 Appendices

Appendix A: HSA Compliance Index Individual Indicator Frequencies, Number and Percent of Schools in Compliance, by School Year

Individual indicator	2012-13		2013-14		2014-15		2015-16	
	N	(%)	N	(%)	N	(%)	N	(%)
Met requirements for health education minutes per week (K-8)	132	(86)	156	(86)	168	(30)	166	(28)
Health education instruction based on OSSE's health education standards (K-8)	124	(93)	157	(92)	168	(95)	-	-
Strategies to promote physical activity: Active recess (K-8)	132	(90)	157	(92)	168	(90)	174	(89)
Strategies to promote physical activity: After-school activities	154	(85)	182	(86)	194	(89)	198	(86)
Strategies to promote physical activity: Movement in the classroom	154	(60)	182	(63)	194	(71)	198	(66)
Strategies to promote physical activity: Athletic programs	154	(81)	182	(81)	194	(83)	198	(73)
Strategies to promote physical activity: Safe routes to school	154	(31)	182	(31)	194	(25)	198	(33)
Strategies to promote physical activity: Walk or bike to school	154	(55)	182	(56)	194	(54)	198	(59)
Met requirements for PE instruction minutes per week (K-8)	129	(95)	157	(93)	165	(21)	171	(25)
Physical activity is more than 50% of physical education period (K-8)	129	(96)	152	(93)	162	(96)	-	-
PE instruction based on OSSE's PE standards (K-8)	124	(95)	150	(96)	165	(98)	-	-
School offers breakfast	153	(98)	182	(100)	194	(100)	-	-
School % FRPL 40% or higher: School serves breakfast in the classroom (K-5) or School has grab-and-go carts (grades 6-12)	112	(79)	124	(80)	135	(83)	-	-
School provides meals meeting federal and district standards	153	(99)	182	(100)	194	(100)	-	-
Lunch period is longer than 30 minutes	-	(-)	181	(95)	194	(96)	-	-

Appendix A Cont.

Individual indicator	2012-13		2013-14		2014-15		2015-16	
	N	(%)	N	(%)	N	(%)	N	(%)
School serves locally grown/processed food at breakfast or lunch	154	(68)	182	(81)	194	(96)	-	-
Cold, filtered water available to students during meal times	152	(93)	182	(97)	194	(85)	197	(89)
School vending machine items available to students comply with the Healthy Schools Act (if school has a vending machine available to students)	15	(100)	26	(100)	39	(100)	-	-
LEA's local wellness policy is posted	154	(73)	182	(84)	194	(93)	198	(84)
School menu for breakfast and/or lunch is posted	154	(96)	182	(98)	194	(96)	198	(97)
Nutritional information for each menu item is posted	154	(80)	182	(86)	194	(97)	198	(60)
Ingredients for each menu item is posted	154	(77)	182	(83)	194	(97)	198	(49)
Growing practices for fruits and vegetables are posted	154	(69)	182	(68)	194	(94)	198	(41)
Students and parents informed about vegetarian options (if school has vegetarian options)	153	(85)	182	(86)	194	(89)	194	(93)
LEA's local wellness policy distributed to parent/teacher organization	154	(51)	182	(65)	194	(66)	198	(32)
LEA's local wellness policy distributed to Wellness Committee	154	(42)	182	(47)	194	(55)	-	-
LEA's local wellness policy distributed to food service staff	154	(58)	182	(69)	194	(66)	198	(39)
LEA's local wellness policy distributed to administrators	154	(62)	182	(79)	194	(73)	198	(36)
LEA's local wellness policy distributed to students	154	(31)	182	(35)	194	(43)	198	(20)
School is implementing LEA's local wellness policy	151	(90)	153	(84)	181	(95)	189	(92)

Appendix B: School Staff Survey

This survey is intended to help OSSE better understand schools' experiences with implementing the Healthy Schools Act.

First, please provide:

1. Title

   [DROP DOWN MENU OPTIONS]:

   Physical Education teacher

   Health teacher

   Nutrition services

   Classroom teacher

   Administrator

   Garden coordinator

   Other:_____

2. LEA/School*

   [DROP DOWN MENU OPTIONS]:

   A list of all LEAs

   [Once LEA is selected, a second drop down menu will appear with the schools in that LEA]

   A list of all schools in selected LEA

3. My school receives Healthy Schools Act-related grants from OSSE.* **[SINGLE SELECTION MULTIPLE CHOICE]**
   a. Yes
   b. No
   c. I don't know

4. I am directly involved in the following Healthy Schools Act-related activities.* ***Select all that apply*** **[MULTIPLE SELECTION MULTIPLE CHOICE]**
   a. Environmental Literacy Leadership Cadre
   b. Farm to School
   c. Growing Healthy Schools Month
   d. Healthy Schools Act Booklist
   e. Healthy Youth and Schools Commission Subcommittees
   f. Strawberries and Salad Greens Day
   g. Wellness Council
   h. Other: _____ **[OPEN TEXT FIELD, REQUIRED IF OTHER IS SELECTED]**
   i. None

The following questions ask about your experiences implementing the Healthy Schools Act in your school.[1]

[QUESTIONS 5-25 ARE RATING SCALE WITH THE OPTIONS:

Strongly Disagree Disagree Neutral Agree Strongly Agree]

5. I have a clear understanding of what is covered in the Healthy Schools Act.
6. I have a clear understanding of how the Healthy Schools Act affects my responsibilities in my current role.
7. I have the skills necessary to implement the Healthy Schools Act in my current role.
8. I have the knowledge necessary to implement the Healthy Schools Act in my current role.
9. I have received adequate training to implement the Healthy Schools Act in my current role.
10. I have received adequate on-the-job support to implement the Healthy Schools Act in my current role.
11. I have adequate time to implement the Healthy Schools Act in my current role.
12. I have adequate resources to implement the Healthy Schools Act in my current role.

The following questions ask about your perceptions about how the Healthy Schools Act is implemented at your school.[2]

13. At my school, members of the school leadership are actively involved in Healthy Schools Act implementation.
14. At my school, we take a team approach to Healthy Schools Act implementation.
15. At my school, we have a plan to implement the Healthy Schools Act that is tailored to our particular needs.
16. The Healthy Schools Act is well-aligned with my school's mission.
17. At my school, we have adequate funds to implement the Healthy Schools Act.

The following questions ask about your perceptions about the support that OSSE provides schools to implement the Healthy Schools Act.[3]

18. OSSE's expectations for Healthy Schools Act implementation in schools are clear.
19. OSSE provides adequate training for schools to implement the Healthy Schools Act.
20. OSSE provides clear and timely information about relevant resources, such as trainings or funding opportunities, to support schools.
21. OSSE distributes Healthy Schools Act-related resources to schools in a fair and consistent manner.
22. OSSE facilitates networking among schools to promote better Healthy Schools Act implementation.
23. OSSE provides schools with feedback on Healthy Schools Act implementation that is useful for assessing priorities.

[1] Items 5 to 12 make up the scale of respondent's personal experience and preparation with the HSA (Cronbach's alpha = 0.942).
[2] Items 13 to 17 make up the scale of HSA implementation at respondent's school (Cronbach's alpha = 0.857).
[3] Items 18 to 25 make up the scale of respondent's perception of OSSE support for HSA implementation (Cronbach's alpha = 0.965).

24. OSSE provides schools with feedback on Healthy Schools Act implementation that is useful for making improvements.

25. The Healthy Schools Act School Health Profiles collected by OSSE provide actionable data that is valued by teachers.

The following questions ask about your opinion of the Healthy Schools Act.

26. What's the one thing that OSSE could do to change the Healthy Schools Act that would improve its implementation at your school? **[OPEN TEXT FIELD]**

27. Please describe your overall experience with the Healthy Schools Act. Include your opinions on its best attributes and areas of improvement. **[OPEN TEXT FIELD]**

28. Please select any processes and programs that have been successfully incorporated in your school as a result of the Healthy Schools Act. *Select all that apply* **[MULTIPLE SELECTION MULTIPLE CHOICE]**

    a. Environmental Literacy Leadership Cadre

    b. Farm to School

    c. Growing Healthy Schools Month

    d. Healthy Schools Act Booklist

    e. Healthy Youth and Schools Commission Subcommittees

    f. Improved nutrition services

    g. Increased health education

    h. Increased physical education

    i. Strawberries and Salad Greens Day

    j. Wellness Council

    k. Other: _____ **[OPEN TEXT FIELD, REQUIRED IF OTHER IS SELECTED]**

    l. None

29. Which, if any, of the topics below would you like to see included/expanded in the Healthy Schools Act?? *Select all that apply* **[MULTIPLE SELECTION MULTIPLE CHOICE]**

    a. Environmental health (e.g. indoor air quality, integrated pest management, testing for lead and bacteria in the water)

    b. Green cleaning (e.g. the use of environmentally friendly products)

    c. Mental health

    d. School climate

    e. Other: _____ **[OPEN TEXT FIELD, REQUIRED IF OTHER IS SELECTED]**

30. Is there anything else you would like to share about your experience with the Healthy Schools Act at your school? **[OPEN TEXT FIELD, REQUIRED IF OTHER IS SELECTED]**

[SUBMIT BUTTON]

Text for next page:

Thank you for completing the survey. Would you be willing to be contacted by Child Trends about participating in a brief phone interview before the school year ends? The purpose of the interview would be to find out more information about your experiences with the Healthy Schools Act. If yes, you will be taken to a page to enter your contact information, which will not be linked to your survey responses.

__ Yes, I am willing to be contacted with more information about a phone interview.

__ No, please do not contact me about a phone interview.

Appendix C: School Staff Interview Questions

First, I'd like to discuss your role at school and with the Healthy Schools Act.

1. Please describe your understanding of the Healthy Schools Act.

2. How would you describe your role in implementing the Healthy Schools Act? What successes or challenges have you experienced in that role?

Next, I want to ask you about the school's role in implementing the Healthy Schools Act.

3. Based on your understanding, describe your school's approach to implementing the Healthy Schools Act. Does this approach fit the needs or mission of your school?

4. How does your school support school staff in implementing the Healthy Schools Act?

5. Overall, how could the school improve Healthy Schools Act implementation?

Finally, I want to ask you about OSSE's role in implementing the Healthy Schools Act.

6. What resources, supports, or feedback has OSSE provided to schools to assist with Healthy Schools Act implementation?

7. How could OSSE better support schools in Healthy Schools Act implementation?

Those are all the questions that I have for you.

8. Is there anything else you would like to share about your experience with the Healthy Schools Act?

Appendix D: OSSE Staff Focus Group Questions

Rapport-building

I'd first like to learn about the personal experiences that each of you has had with the Healthy Schools Act. In a moment, we will talk about the role of OSSE as a whole, but, for now, let's focus on your own roles.

1. Let's go around the room so that you can each briefly describe your role and how it fits into Healthy Schools Act implementation and monitoring efforts.
2. When you first started working in your current roles, how did you learn about the Healthy Schools Act and its history?
    a. What, if anything, were the key things you learned?
3. What successes or challenges have you experienced in these roles, if any?

OSSE's and schools' roles in Healthy Schools Act implementation

Now I'd like to talk more broadly about OSSE's role in overall Healthy Schools Act implementation efforts.

4. In your own words, how would you describe OSSE's role in supporting and monitoring implementation of the Healthy Schools Act?
5. In what ways, if at all, does OSSE support you as a staff member in your role with regard to supporting and monitoring implementation of the Healthy Schools Act?
    a. What kinds of supports, if any, have you found the most helpful from OSSE?
    b. In what ways, if any, do you feel OSSE could better support you in your role?
6. Based on your understanding of the Healthy Schools Act, what are the responsibilities that schools and LEAs have with regard to implementation of the Act?
7. What, if any, resources, supports, or feedback has OSSE provided to schools to assist with Healthy Schools Act implementation?
8. If you have one, please describe an example of a time when OSSE and one or more schools or LEAs worked together on an initiative related to Healthy Schools Act implementation.

    PROBES IF NEEDED:

    a. What was the role of OSSE in this process? The LEA? The school? School staff?
    b. What, if any resources, supports, or feedback did OSSE provide to the school or LEA?
    c. How, if at all, did the school or LEA support school staff in implementing the Healthy Schools Act?
    d. How, if at all, was that initiative related to the needs or priorities of that school or LEA?
    e. How would you describe the outcome of that initiative?
        i. What led you to think that, or what indicated to you that the initiative had produced this outcome?

ii. What do you think was the most important factor influencing that outcome?

Overall Healthy Schools Act implementation, successes, and opportunities for improvement

Now, I'd like to take the conversation in a slightly different direction and talk about the Healthy Schools Act in general.

9. Please describe strategies that you have seen schools or LEAs use to implement the Healthy Schools Act.
    a. Which, if any, do you think have been the most successful? The least successful? Why do you think that?

        PROBES IF NEEDED:

        - Environmental Literacy Leadership Cadre
        - Farm to School
        - Growing Healthy Schools Month
        - Healthy Schools Act Booklist
        - Healthy Youth and Schools Commission Subcommittees
        - Improved nutrition services
        - Increased health education
        - Increased physical education
        - Strawberries and Salad Greens Day
        - Wellness Council

10. Have there been any significant successes of the Healthy Schools Act so far?
    a. Are there things you think OSSE has done well? What do you think made those things successful?

        PROBES IF NEEDED:

        - Setting clear expectations
        - Providing adequate training
        - Supplying schools with Healthy Schools Act-related resources
        - Facilitating networking among schools
        - Providing schools with helpful feedback
        - Collecting and sharing School Health Profile data

    b. What, if anything, are some things you think schools have done well?

11. Have there been any challenges to successful implementation of the Healthy Schools Act so far?

a. How, if at all, have any supports OSSE provides you affected successful implementation of the Healthy Schools Act so far?

12. Are there any changes you would like to see made to improve Healthy Schools Act implementation?

    a. Is there anything schools or LEAs could do to improve Healthy Schools Act implementation?

    b. Is there anything OSSE could do to better support schools in Healthy Schools Act implementation?

    c. What, if any, changes would you make to the Healthy Schools Act itself?

        i. What topics, if any, would you like to see included/expanded in the Healthy Schools Act? Why?

PROBES IF NEEDED:

- Environmental health (e.g. indoor air quality, integrated pest management, testing for lead and bacteria in the water)
- Green cleaning (e.g. the use of environmentally friendly products)
- Mental health
- School climate

Wrap-up

Before we end, I want to give you an opportunity to share any last thoughts you might have.

13. Is there anything else you would like to share about your experience with the Healthy Schools Act or perspectives about its implementation?

Appendix E: HYSC Commission Focus Group Questions

Rapport-building

I'd first like to learn about the personal experiences that each of you has had with the Healthy Schools Act. In a moment, we will talk about the role of the commission as a whole, but, for now, let's focus on your own roles.

1. Before I hear about your experiences with the Healthy School Act, let's just start by each of you sharing what your profession is and your area of expertise, and your role in the Healthy Schools Act implementation and monitoring efforts?

2. How did you become a part of the Commission?

    a. How did you come to understand the Healthy Schools Act and its history and goals?

3. I'm interested in learning about the successes and challenges you all have experienced in your roles we just discussed. Could you share a bit about these?

HYSC's and OSSE's role in Healthy Schools Act implementation

Now I'd like to talk more broadly about the Commission's role in overall Healthy Schools Act implementation and monitoring efforts.

4. In your own words, how would you describe the Commission's role with regard to implementation and monitoring of the Healthy Schools Act?

    a. I'm interested in hearing a bit about some of the successes, as well as the challenges, that you believe that the Commission has had in terms of implementing and monitoring this act. Why don't we begin by talking about successes?

    Thank you. Now what about any challenges?

    b. What, if any, other functions do you believe might be useful for the Commission to take on with respect to the Healthy Schools Act?

    c. [PROBE on functions mentioned as they come up]: Can you help me understand the reasons that these additional functions might be useful?

    d. [PROBE on challenges that prevent the implementation of these additional functions]: Can you share your thoughts on any existing barriers that may make it more challenging to implement these additional functions?

5. That information was very helpful. Thank you. I'd like to shift now to talk a bit about the relationship between the commission and OSSE related to the implementation and monitoring of the Healthy Schools Act.

    a. Let's begin by talking about collaboration between the Commission and OSSE. In your own words, how would you describe OSSE's role with regard to implementation and monitoring of the Healthy Schools Act?

    b. Are there ways in which the Commission and OSSE work together to ensure alignment of community and school efforts in promoting health, nutrition, and wellness?

c. Are there ways in which OSSE seeks guidance from the Commission around implementation of the Healthy Schools Act? [PROBE on ways mentioned by group members: Tell me more about that. About how often does that occur?]

d. Does the Commission receive information from OSSE about the progress of HSA implementation in schools? [PROBE on answers: Can you describe more about that? And, how often would you say this occurs?]

e. Possibly include: What, if anything, do you think would improve collaboration between the Commission and OSSE? [PROBE on answers: Can you describe more about that? What would be needed to make this a reality?]

6. To date, has the Commission shared any feedback or resources with OSSE related to Healthy Schools Act implementation? If so, what has been shared?

Overall Healthy Schools Act implementation, successes, and opportunities for improvement

Now, I'd like to take the conversation in a slightly different direction and talk about the Healthy Schools Act in general.

7. Are there any structures and supports within the community to support HSA implementation?

    a. Do you think additional structures and supports are needed in the community? [PROBE: Can you talk more about those?]

8. I'm interested in learning more about how OSSE supports the implementation of the Healthy Schools Act.

    a. What strategies has OSSE used that you think have been successful or unsuccessful?[PROBE on each: Why is that? Can you say more?]

9. Overall, how well do you think the Healthy Schools Act is being implemented in schools? Why?

10. I'm interested to learn from you all about any recommendations that the Commission has made and that have been successfully taken up by OSSE. What were they?

11. Earlier, we talked about the Commission's successes around implementation and monitoring. I'm also interested to get your opinions about success of the Healthy Schools Act broadly.

    a. How does the Commission define success for the Healthy Schools Act?

    b. Can you share some specific examples of success that have been achieved so far?

        PROBES IF NEEDED:

        - Providing OSSE feedback or input on specific issues
        - Identifying gaps and providing recommendations to the Mayor
        - Setting an agenda for the Mayor
        - Supplying OSSE with resources and supports from the community

    c. Are there things you think OSSE has done well?

d. To your knowledge, are there any processes or programs that have been successfully incorporated in schools as a result of the Healthy Schools Act?

PROBES IF NEEDED:

Can you say something about …

- Environmental Literacy Leadership Cadre
- Farm to School
- Growing Healthy Schools Month
- Healthy Schools Act Booklist
- Healthy Youth and Schools Commission Subcommittees
- Improved nutrition services
- Increased health education
- Increased physical education
- Strawberries and Salad Greens Day
- Wellness Council

12. What, if any, improvements would you like to see made to Healthy Schools Act implementation?

a. Is there anything the Commission could do to better support OSSE in Healthy Schools Act implementation?

b. Is there anything OSSE could do to improve Healthy Schools Act implementation?

c. Are there any changes you would like to see made to the Healthy Schools Act itself?

i. Are there any additional topics you would like to see included/expanded in the Healthy Schools Act (for example, environmental health, green cleaning, mental health, school climate)? Why?

PROBES IF NEEDED:

- Environmental health (e.g. indoor air quality, integrated pest management, testing for lead and bacteria in the water)
- Green cleaning (e.g. the use of environmentally friendly products)
- Mental health
- School climate

Wrap-up

Before we end, I want to give you an opportunity to share any last thoughts you might have.

13. Is there anything else you would like to share about your experience with the Healthy Schools Act or perspectives about its implementation?

Appendix F: HSA Staff Survey and Interview Codebook

Name	Description
Aspect of HSA	
Breakfast and Lunch Access	Refers to initiatives, challenges, successes, etc. related to the part of the Act that addresses breakfast/lunch access
Competitive Foods	Refers to initiatives, challenges, successes, etc. related to the part of the Act that addresses competitive foods
Farm-to-School	Refers to initiatives, challenges, successes, etc. related to the part of the Act that addresses farm to school
Health and Wellness	Refers to initiatives, challenges, successes, etc. related to the part of the Act that addresses health and wellness
Health Education	Refers to initiatives, challenges, successes, etc. related to the part of the Act that addresses health education
Overall	
Physical Activity and Education	Refers to initiatives, challenges, successes, etc. related to the part of the Act that addresses physical activity/education
School Environment	Refers to initiatives, challenges, successes, etc. related to the part of the Act that addresses school environment
School Nutrition	Refers to initiatives, challenges, successes, etc. related to the part of the Act that addresses school nutrition
Aspect of Implementation	
Grants and Funding	Refers to initiatives, challenges, successes, etc. related to implementation of the Act regarding grants/funding
Information Provided	Refers to information about the Healthy Schools Act (or lack thereof) provided by one group to another
Leadership and Oversight	Refers to initiatives, challenges, successes, etc. related to implementation of the Act regarding leadership/oversight (e.g. any comments about specific individuals, like principals or OSSE staff, who have the power to shape aspects of implementation)
Non-Financial Support or Resources	Refers to initiatives, challenges, successes, etc. related to implementation of the Act regarding non-financial support/resources (e.g., OSSE connecting schools with one another to enhance implementation efforts)
Partnerships	Refers to instances when individuals and/or organizations worked together on Healthy Schools Act-related initiatives
Professional Development	Refers to initiatives, challenges, successes, etc. related to implementation of the Act regarding professional development
Reporting and Outcomes Measurement	Refers to initiatives, challenges, successes, etc. related to implementation of the Act regarding reporting and outcomes measurement (e.g., testing, financial reporting)
Requirements or Restrictions	Refers to initiatives, challenges, successes, etc. related to implementation of the Act regarding requirements/restrictions

Appendix F Cont.

Strategies or Approach to Implementation	Refers to specific strategies that individuals or groups use to implement the Act. This could include, e.g., connecting the garden to the science curriculum
Attitude	
Mixed	Indicates respondent has both positive and negative feelings
Negative	Indicates disapproval
Neutral	Indicates respondent has neither positive nor negative feelings
Perceived Inadequacy	Indicates that respondent perceives a lack of something necessary (i.e. knowledge or training). Distinct from negative in that respondent does not disapprove or disagree, but rather would just like to see more of something they perceive to be positive.
Positive	Indicates approval
Well-Intentioned BUT	Indicates respondent sees the aims of the Act as positive but at least some of its results as negative
Experience with Implementation	
Challenges	Refers to aspects of implementation that respondent feels did not go easily and/or well
Interactions	Refers to instances when the respondent worked with other individuals or organizations on Healthy Schools Act-related initiatives
Perceived Outcome	Refers to changes/results the respondent attributes to the Healthy Schools Act
Role and Initiatives	Refers to Healthy Schools Act-related initiatives with which the respondent has direct experience
Successes	Refers to aspects of implementation that respondent feels went well
Understanding of Healthy Schools Act	Refers to respondent's perceptions of what is in the Act. Includes comments about having a lack of understanding
Group Affected	
Community	Indicates the respondent perceived an effect of the Act on the larger community (e.g. neighborhood, greater DC area)
Respondent	Indicates the respondent perceived an effect of the Act on him/herself
School	Indicates the respondent perceived an effect of the Act on his or her school
School Staff or Administrators	Indicates the respondent perceived an effect of the Act on school staff or administrators
Students	Indicates the respondent perceived an effect of the Act on students at his or her school
Implementation Level	
OSSE	Refers to experiences, actions, outcomes, etc. that pertain to OSSE
Respondent	Refers to experiences, actions, outcomes, etc. that pertain to the respondent
School	Refers to experiences, actions, outcomes, etc. that pertain to the respondent's school
School Staff or Administrators	Refers to experiences, actions, outcomes, etc. that pertain to specific individuals in the schools other than the respondent

Chapter 3 Appendix

Appendix A: Compliance Index Items

HSA Compliance Index Item	Elementary School	Middle School	High School	2012-13	2013-14	2014-15	2015-16
School promotes physical activity through active recess	X	X					
School promotes physical activity through afterschool activities	X	X	X				
School promotes physical activity through movement in the classroom	X	X	X				
School promotes physical activity through athletic programs	X	X	X				
School promotes physical activity through walk or bike to school initiatives	X	X	X				
School promotes physical activity through safe routes to school	X	X	X				
School meets required weekly minutes of physical education instruction	X	X					
More than 50% of time in physical education course is devoted to activity	X	X					
Physical education instruction based on OSSE's physical education standards	X	X					

Appendix A Cont.

HSA Compliance Index Item	Elementary School	Middle School	High School	2012-13	2013-14	2014-15	2015-16
School meets required weekly minutes of health education for all grades	X	X					
Health education instruction is based on OSSE's health education standards	X	X					
School serves breakfast	X	X	X				
School serves breakfast in the classroom (if percent of students receiving FRPL > 40%)	X						
School serves breakfast at grab-and-go carts (if percent of students receiving FRPL > 40%)		X	X				
School meals meet federal and district standards	X	X	X				
Lunch period is 30 minutes or longer	X	X	X				
School serves locally grown/ processed foods at breakfast and/ or lunch	X	X	X				
Cold, filtered water is available to students	X	X	X				
Items in school vending machines available to students comply with HSA	X	X	X				

Appendix A Cont.

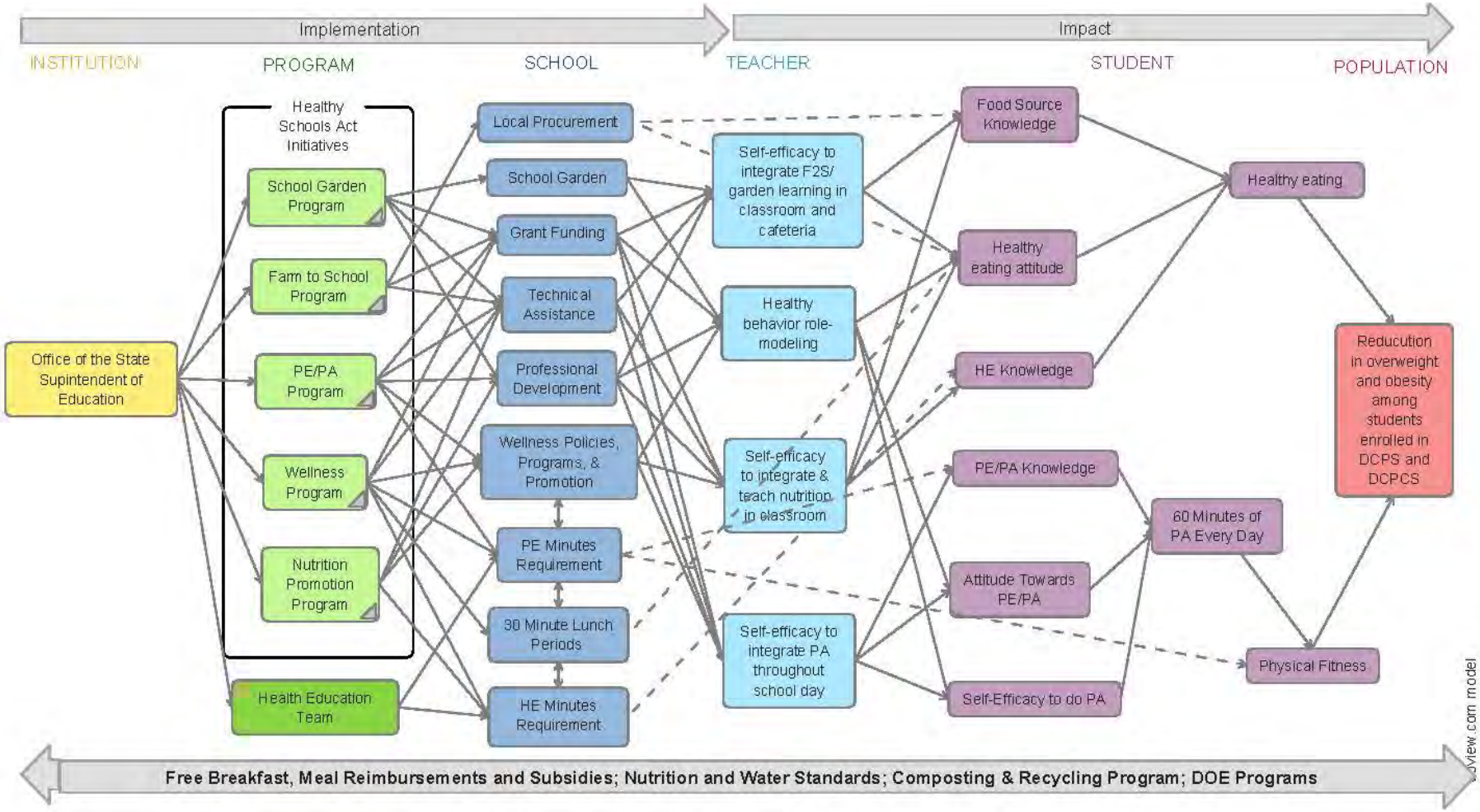
HSA Compliance Index Item	Elementary School	Middle School	High School	2012-13	2013-14	2014-15	2015-16
School posts the school breakfast and lunch menu (in school cafeteria, school main office, and/or online)	X	X	X				
School posts information about the local wellness policy (in school cafeteria, school main office, and/or online)	X	X	X				
School posts information about the nutritional ingredients for each menu item (in school cafeteria, school main office, and/or online)	X	X	X				
School posts information about the ingredients for each menu item (in school cafeteria, school main office, and/or online)	X	X	X				
School posts information about the source and growing practices for fruits and vegetables (in school cafeteria, school main office, and/or online)	X	X	X				
School informs students and parents about the availability of vegetarian food options	X	X	X				
School distributes information about the local wellness policy to the school PTO	X	X	X				

Appendix A Cont.

HSA Compliance Index Item	Elementary School	Middle School	High School	2012-13	2013-14	2014-15	2015-16
School distributes information about the local wellness policy to the wellness committee	X	X	X				
School distributes information about the local wellness policy to food service staff	X	X	X				
School distributes information about the local wellness policy to administrators	X	X	X				
School distributes information about the local wellness policy to students	X	X	X				
School is currently implementing the corresponding LEA's local wellness policy	X	X	X				
	Total possible items: Elementary school			30	30	30	20
	Total possible items: Middle school			30	30	30	20
	Total possible items: High school			24	24	24	16

Chapter 4 Appendices

Appendix A: Healthy Schools Act Theory of Change



Appendix B: Statistical Models

Table B.1. Associations between student outcomes and HSA compliance index

VARIABLES	Health knowledge	Truancy	In-seat attendance	Reading-Std. DC CAS/PARCC	MATH-Std. DC CAS/PARCC
Compliance Index	0.044 [0.382]	-0.138 [0.487]	0.033 [0.457]	0.027 [0.884]	0.223 [0.350]
0 to 24 percent Direct Certified	Ref	Ref	Ref	Ref	Ref
25 to 49 percent Direct Certified	-0.228*** [<0.001]	0.374** [0.002]	-0.162** [0.001]	0.192 [0.379]	0.183 [0.148]
50 to 74 percent Direct Certified	-0.285*** [<0.001]	0.571*** [<0.001]	-0.221*** [<0.001]	0.192 [0.430]	0.194 [0.227]
75 to 100 percent Direct Certified	-0.381*** [<0.001]	0.595*** [<0.001]	-0.182*** [<0.001]	0.354 [0.179]	0.396* [0.042]
Log of enrollment	-0.020 [0.492]	0.161 [0.096]	-0.080* [0.036]	-0.147 [0.533]	0.474 [0.068]
0 to 1 percent EL	Ref	Ref	Ref	Ref	Ref
1 to 9 percent EL	<0.001 [0.983]	-0.004 [0.973]	0.036 [0.288]	0.014 [0.891]	0.090 [0.436]
10 to 24 percent EL	-0.070 [0.060]	0.010 [0.936]	0.024 [0.571]	0.053 [0.641]	0.095 [0.497]
More than 25 percent EL	-0.081* [0.020]	-0.014 [0.921]	0.016 [0.745]	0.027 [0.860]	0.087 [0.640]
0 to 4 percent in special education	Ref	Ref	Ref	Ref	Ref
5 to 9 percent in special education	-0.146** [0.007]	-0.017 [0.891]	0.048 [0.153]	-0.212 [0.138]	-0.483** [0.004]
10 to 19 percent in special education	-0.184*** [<0.001]	-0.149 [0.277]	0.077* [0.040]	-0.261 [0.090]	-0.511** [0.006]
20 percent or higher in special education	-0.215*** [<0.001]	0.243 [0.135]	-0.067 [0.131]	-0.324 [0.060]	-0.560* [0.013]
Public charter school	Ref	Ref	Ref	-	-

Table B.1 Cont. Associations between student outcomes and HSA compliance

VARIABLES	Health knowledge	Truancy	In-seat attendance	Reading-Std. DC CAS/PARCC	MATH-Std. DC CAS/PARCC
DCPS	-0.057**	0.081	-0.039	-	-
	[0.008]	[0.359]	[0.263]		
Serve students in K-5	-0.061*	-0.134	0.073	0.109	0.378
	[0.037]	[0.182]	[0.213]	[0.705]	[0.194]
Serve students in grades 6-8	0.016	0.111	0.031	0.067	-0.170
	[0.478]	[0.132]	[0.323]	[0.799]	[0.415]
Serve students in grades 9-12	-0.098*	0.569***	-0.281***	-	-
	[0.019]	[<.001]	[<.001]		
Ward 1	Ref	Ref	Ref	Ref	Ref
Ward 2	-0.037	-0.001	0.044	-0.348	-0.069
	[0.503]	[0.996]	[0.582]	[0.493]	[0.878]
Ward 3	0.054	-0.080	0.045	0.584*	-1.020***
	[0.328]	[0.716]	[0.491]	[0.019]	[<0.001]
Ward 4	-0.034	0.074	-0.048	0.052	0.292
	[0.304]	[0.592]	[0.374]	[0.821]	[0.232]
Ward 5	-0.092*	0.096	-0.029	0.095	0.612
	[0.049]	[0.580]	[0.652]	[0.771]	[0.059]
Ward 6	-0.099*	0.112	-0.016	-0.195	0.237
	[0.023]	[0.463]	[0.784]	[0.301]	[0.197]
Ward 7	-0.108*	0.144	-0.054	0.337	-0.148
	[0.022]	[0.382]	[0.396]	[0.117]	[0.137]
Ward 8	-0.139*	0.176	-0.094	-	-
	[0.022]	[0.321]	[0.174]		
2012-13	Ref	Ref	Ref	Ref	Ref
2013-14	0.091***	-0.081	-0.0382**	-0.069*	-0.115*
	[<0.001]	[0.076]	[0.004]	[0.035]	[0.014]
2014-15		0.242***	-0.0242*	-0.121*	-0.222***
		[<0.001]	[0.047]	[0.011]	[<0.001]
Constant	0.995***	-2.324***	2.064***	0.882	-2.786
	[<0.001]	[<0.001]	[<0.001]	[0.517]	[0.058]
Observations	256	486	516	486	486
Number of schools	139	189	190	181	181

p-value in brackets
*** p<0.001, ** p<0.01, * p<0.05
"-" omitted for collinearity

Table B.2. Associations between student outcomes and HSA compliance index and additional school health practices and policies

VARIABLES	Health knowledge	Truancy	In-seat attendance	Reading-Std. DC CAS/PARCC	Math-Std. DC CAS/PARCC
Compliance Index	0.087 [0.106]	-0.034 [0.883]	0.042 [0.388]	-0.031 [0.890]	0.189 [0.496]
No Nurse	Ref	Ref	Ref	Ref	Ref
Nurse Part-Time	0.014 [0.704]	0.0329 [0.802]	0.061 [0.081]	-0.178 [0.367]	-0.203 [0.412]
Nurse Full-Time	0.006 [0.856]	-0.018 [0.869]	0.042 [0.153]	-0.224 [0.265]	-0.257 [0.285]
No Mental Health staff	Ref	Ref	Ref	Ref	Ref
Mental health staff-Part-Time	-0.002 [0.885]	0.077 [0.123]	0.002 [0.866]	0.018 [0.707]	0.025 [0.633]
Mental health staff-Full-Time	-0.030 [0.118]	-0.058 [0.355]	-0.002 [0.893]	0.078 [0.178]	-0.025 [0.727]
Health educator on staff	-0.010 [0.693]	-0.067 [0.381]	0.020 [0.171]	0.135 [0.085]	0.112 [0.179]
Health education included across subjects	-0.017 [0.285]	-0.013 [0.775]	-0.010 [0.350]	-0.010 [0.793]	0.067 [0.267]
School has a garden	0.008 [0.699]	-0.062 [0.247]	-0.014 [0.370]	-0.014 [0.787]	-0.103 [0.191]
0 to 24 percent Direct Certified	Ref	Ref	Ref	Ref	Ref
25 to 49 percent Direct Certified	-0.219*** [<0.001]	0.404** [0.001]	-0.165** [0.001]	0.177 [0.448]	0.197 [0.113]
50 to 74 percent Direct Certified	-0.276*** [<0.001]	0.604*** [<0.001]	-0.226*** [<0.001]	0.173 [0.498]	0.185 [0.260]
75 to 100 percent Direct Certified	-0.367*** [<0.001]	0.631*** [<0.001]	-0.189*** [<0.001]	0.312 [0.259]	0.406* [0.041]

Table B.2 Cont. Associations between student outcomes and HSA compliance index and additional school health practices and policies

VARIABLES	Health knowledge	Truancy	In-seat attendance	Reading-Std. DC CAS/PARCC	Math-Std. DC CAS/PARCC
Log of enrollment	-0.010 [0.756]	0.213* [0.030]	-0.086* [0.027]	-0.154 [0.536]	0.552* [0.034]
0 to 1 percent EL	Ref	Ref	Ref	Ref	Ref
1 to 9 percent EL	-0.000 [0.993]	0.0132 [0.910]	0.036 [0.285]	0.027 [0.791]	0.101 [0.391]
10 to 24 percent EL	-0.067 [0.066]	0.037 [0.764]	0.019 [0.648]	0.069 [0.556]	0.069 [0.650]
More than 25 percent EL	-0.077* [0.025]	0.010 [0.938]	0.018 [0.700]	0.029 [0.842]	0.038 [0.846]
0 to 4 percent in special education	Ref	Ref	Ref	Ref	Ref
5 to 9 percent in special education	-0.148** [0.006]	-0.024 [0.842]	0.047 [0.171]	-0.235 [0.095]	-0.493** [0.003]
10 to 19 percent in special education	-0.187*** [<0.001]	-0.167 [0.207]	0.074 [0.053]	-0.267 [0.077]	-0.510** [0.005]
20 percent or higher in special education	-0.215*** [<0.001]	0.246 [0.116]	-0.066 [0.140]	-0.340* [0.042]	-0.556* [0.013]
Public charter school	Ref	Ref	Ref	-	-
DCPS	-0.063* [0.013]	0.089 [0.345]	-0.049 [0.181]	-	-
Serve students in K-5	-0.065* [0.021]	-0.150 [0.132]	0.078 [0.185]	0.272 [0.371]	0.438 [0.204]
Serve students in grades 6-8	0.019 [0.400]	0.122 [0.091]	0.037 [0.255]	0.070 [0.793]	-0.189 [0.352]
Serve students in grades 9-12	-0.103* [0.019]	0.552*** [<0.001]	-0.276*** [<0.001]	-	-
Ward 1	Ref	Ref	Ref	Ref	Ref
Ward 2	-0.026 [0.634]	0.007 [0.969]	0.040 [0.611]	-0.412 [0.424]	-0.121 [0.786]
Ward 3	0.068 [0.222]	-0.042 [0.850]	0.042 [0.516]	0.629* [0.026]	-1.016*** [<0.001]
Ward 4	-0.027 [0.420]	0.094 [0.475]	-0.054 [0.320]	-0.071 [0.766]	0.207 [0.368]

Table B.2 Cont. Associations between student outcomes and HSA compliance index and additional school health practices and policies

VARIABLES	Health knowledge	Truancy	In-seat Attendance	Reading-Std. DC CAS/PARCC	Math-Std. DC CAS/PARCC
Ward 5	-0.081	0.113	-0.041	-0.063	0.525
	[0.083]	[0.509]	[0.526]	[0.847]	[0.095]
Ward 6	-0.086*	0.147	-0.024	-0.301	0.135
	[0.048]	[0.324]	[0.674]	[0.124]	[0.417]
Ward 7	-0.100*	0.174	-0.062	0.333	-0.059
	[0.033]	[0.283]	[0.322]	[0.171]	[0.627]
Ward 8	-0.132*	0.187	-0.100	-	-
	[0.026]	[0.284]	[0.144]		
2012-13	Ref	Ref	Ref	Ref	Ref
2013-14	0.104***	-0.090	-0.0411**	-0.098**	-0.132**
	[<0.001]	[0.070]	[0.007]	[0.010]	[0.005]
2014-15		0.237***	-0.0273	-0.157**	-0.244**
		[<0.001]	[0.068]	[0.003]	[0.001]
Constant	0.918***	-2.635***	2.061***	0.978	-3.061*
	[<0.001]	[<0.001]	[<0.001]	[0.486]	[0.038]
Observations	256	486	516	486	486
Number of schools	139	189	190	181	181

p-value in brackets
*** p<0.001, ** p<0.01, * p<0.05
"-" omitted for collinearity

Table B.3. Associations between Physical Education knowledge and HSA compliance index, Physical Education and Health sub-indices, and additional school health practices and policies

VARIABLES	PE sub-index + Health sub-index	Compliance index + additional school health policies and practices
PE compliance sub-index	0.118 [0.123]	
Health compliance sub-index	0.059 [0.151]	
Compliance index		0.084 [0.260]
Health educator on staff		-0.001 [0.987]
Health education included across subjects		0.001 [0.963]
0 to 24 percent Direct Certified	Ref	Ref
25 to 49 percent Direct Certified	-0.225*** [<0.001]	-0.224*** [<0.001]
50 to 74 percent Direct Certified	-0.297*** [<0.001]	-0.301*** [<0.001]
75 to 100 percent Direct Certified	-0.423*** [<0.001]	-0.426*** [<0.001]
Log of enrollment	0.001 [0.989]	0.005 [0.890]
0 to 1 percent EL	Ref	Ref
1 to 9 percent EL	0.024 [0.534]	0.024 [0.534]
10 to 24 percent EL	-0.110* [0.043]	-0.101 [0.060]
More than 25 percent EL	-0.151** [0.006]	-0.150** [0.005]
0 to 4 percent in special education	Ref	Ref
5 to 9 percent in special education	-0.181* [0.032]	-0.180* [0.037]
10 to 19 percent in special education	-0.256** [0.003]	-0.252** [0.003]
20 percent or higher in special education	-0.349*** [<0.001]	-0.336*** [<0.001]
Public charter school	Ref	Ref
DCPS	0.015 [0.583]	0.0147 [0.593]

Table B.3 Cont. Associations between Physical Education knowledge and HSA compliance index, Physical Education and Health sub-indices, and additional school health practices and policies

VARIABLES	PE sub-index + Health sub-index	Compliance index + additional school health policies and practices
Serve students in K-5	0.239*** [<0.001]	0.238*** [<0.001]
Serve students in grades 6-8	-0.082** [0.003]	-0.086** [0.002]
Serve students in grades 9-12	-0.183*** [<0.001]	-0.188*** [<0.001]
Ward 1	Ref	Ref
Ward 2	-0.067 [0.422]	-0.060 [0.479]
Ward 3	0.034 [0.669]	0.0481 [0.552]
Ward 4	-0.100* [0.031]	-0.088 [0.068]
Ward 5	-0.141* [0.019]	-0.132* [0.039]
Ward 6	-0.100 [0.092]	-0.088 [0.155]
Ward 7	-0.083 [0.223]	-0.079 [0.257]
Ward 8	-0.078 [0.301]	-0.070 [0.360]
2012-13	Ref	Ref
2013-14	0.187*** [<0.001]	0.186*** [<0.001]
Constant	0.571* [0.026]	0.612* [0.019]
Observations	257	257
Number of schools	139	139

p-value in brackets

*** p<0.001, ** p<0.01, * p<0.05

Table B.4. Associations between nutrition knowledge and nutrition and health sub-indices, and school garden

VARIABLES	Nutrition sub-index + Health sub-index	Compliance index + additional school health policies and practices	School garden
Nutrition compliance sub-index	0.043 [0.541]		
Health compliance sub-index	-0.027 [0.538]		
Compliance index		-0.052 [0.592]	
Health educator		0.024 [0.632]	
Health education across subjects		-0.017 [0.517]	
School has a garden		0.046 [0.079]	0.047* [0.038]
0 to 24 percent Direct Certified	Ref	Ref	Ref
25 to 49 percent Direct Certified	-0.248*** [<0.001]	-0.256*** [<0.001]	-0.284*** [<0.001]
50 to 74 percent Direct Certified	-0.349*** [<0.001]	-0.358*** [<0.001]	-0.380*** [<0.001]
75 to 100 percent Direct Certified	-0.442*** [<0.001]	-0.449*** [<0.001]	-0.479*** [<0.001]
Log of enrollment	-0.014 [0.704]	-0.0130 [0.707]	-0.007 [0.813]
0 to 1 percent EL	Ref	Ref	Ref
1 to 9 percent EL	0.033 [0.314]	0.026 [0.440]	0.052 [0.071]
10 to 24 percent EL	-0.025 [0.583]	-0.020 [0.657]	0.017 [0.621]
More than 25 percent EL	0.088 [0.050]	0.088* [0.043]	0.101** [0.001]
0 to 4 percent in special education	Ref	Ref	Ref
5 to 9 percent in special education	-0.152** [0.010]	-0.171** [0.003]	-0.166** [0.007]
10 to 19 percent in special education	-0.187** [0.002]	-0.194** [0.001]	-0.196** [0.002]
20 percent or higher in special education	-0.168** [0.009]	-0.183** [0.004]	-0.200** [0.002]

Table B.4 Cont. Associations between nutrition knowledge and nutrition and health sub-indices, and school garden

VARIABLES	Nutrition sub-index + Health sub-index	Compliance index + additional school health policies and practices	School garden
Public charter school	Ref	Ref	Ref
DCPS	-0.079**	-0.091***	-0.073**
	[0.002]	[<0.001]	[0.003]
Serve students in K-5	0.149***	0.161***	0.141***
	[<0.001]	[<0.001]	[<0.001]
Serve students in grades 6-8	-0.174***	-0.168***	-0.163***
	[<0.001]	[<0.001]	[<0.001]
Serve students in grades 9-12	-0.173***	-0.170***	-0.168***
	[<0.001]	[<0.001]	[<0.001]
Ward 1	Ref	Ref	
Ward 2	-0.013	-0.007	
	[0.846]	[0.912]	
Ward 3	0.103	0.102	
	[0.118]	[0.129]	
Ward 4	-0.019	-0.014	
	[0.553]	[0.665]	
Ward 5	-0.030	-0.017	
	[0.555]	[0.736]	
Ward 6	-0.031	-0.022	
	[0.496]	[0.625]	
Ward 7	-0.027	-0.008	
	[0.610]	[0.870]	
Ward 8	-0.062	-0.046	
	[0.374]	[0.493]	
2012-13	Ref	Ref	Ref
2013-14	0.090***	0.099***	0.096***
	[<0.001]	[<0.001]	[<0.001]
Constant	0.958***	0.970***	0.909***
	[<0.001]	[<0.001]	[<0.001]
Observations	258	257	257
Number of schools	139	139	139

p-value in brackets

*** p<0.001, ** p<0.01, * p<0.05

Table B.5. Association between truancy, in-seat attendance, and school gardens

VARIABLES	Truancy rate	In-seat attendance
School has a garden	-0.078 [0.141]	-0.010 [0.496]
0 to 24 percent Direct Certified	Ref	Ref
25 to 49 percent Direct Certified	0.428*** [<0.001]	-0.192*** [<0.001]
50 to 74 percent Direct Certified	0.627*** [<0.001]	-0.264*** [<0.001]
75 to 100 percent Direct Certified	0.673*** [<0.001]	-0.237*** [<0.001]
Log of enrollment	0.169 [0.065]	-0.0771* [0.042]
0 to 1 percent EL	Ref	Ref
1 to 9 percent EL	-0.038 [0.691]	0.049 [0.079]
10 to 24 percent EL	-0.064 [0.456]	0.039 [0.283]
More than 25 percent EL	-0.078 [0.442]	0.031 [0.422]
0 to 4 percent in special education	Ref	Ref
5 to 9 percent in special education	0.004 [0.971]	0.042 [0.206]
10 to 19 percent in special education	-0.122 [0.354]	0.064 [0.092]
20 percent or higher in special education	0.293 [0.054]	-0.066 [0.146]
Public charter school	Ref	Ref
DCPS	0.074 [0.338]	-0.028 [0.416]
Serve students in K-5	-0.123 [0.177]	0.080 [0.181]
Serve students in grades 6-8	0.082 [0.264]	0.038 [0.240]
Serve students in grades 9-12	0.550*** [<0.001]	-0.282*** [0.001]
2012-13	Ref	Ref
2013-14	-0.097* [0.032]	-0.037** [0.006]

Table B.5 Cont. Association between truancy, in-seat attendance, and school gardens

VARIABLES	Truancy rate	In-seat attendance
2014-15	0.226*** [<0.001]	-0.0231 [0.070]
Constant	-2.379*** [<0.001]	2.059*** [<0.001]
Observations	486	516
Number of schools	189	190

p-value in brackets

*** p<0.001, ** p<0.01, * p<0.05

Chapter 5 Appendices

Appendix A: School Staff Survey

This survey is intended to help OSSE better understand schools' experiences with implementing the Healthy Schools Act.

First, please provide:

1. Title

   [DROP DOWN MENU OPTIONS]:

   Physical Education teacher

   Health teacher

   Nutrition services

   Classroom teacher

   Administrator

   Garden coordinator

   Other:_____

2. LEA/School*

   [DROP DOWN MENU OPTIONS]:

   A list of all LEAs

   [Once LEA is selected, a second drop down menu will appear with the schools in that LEA]

   A list of all schools in selected LEA

3. My school receives Healthy Schools Act-related grants from OSSE.* **[SINGLE SELECTION MULTIPLE CHOICE]**
   a. Yes
   b. No
   c. I don't know

4. I am directly involved in the following Healthy Schools Act-related activities.* ***Select all that apply*** **[MULTIPLE SELECTION MULTIPLE CHOICE]**
   a. Environmental Literacy Leadership Cadre
   b. Farm to School
   c. Growing Healthy Schools Month
   d. Healthy Schools Act Booklist
   e. Healthy Youth and Schools Commission Subcommittees
   f. Strawberries and Salad Greens Day
   g. Wellness Council
   h. Other: _____ **[OPEN TEXT FIELD, REQUIRED IF OTHER IS SELECTED]**
   i. None

The following questions ask about your experiences implementing the Healthy Schools Act in your school.[1]

[QUESTIONS 5-25 ARE RATING SCALE WITH THE OPTIONS:

Strongly Disagree Disagree Neutral Agree Strongly Agree]

5. I have a clear understanding of what is covered in the Healthy Schools Act.
6. I have a clear understanding of how the Healthy Schools Act affects my responsibilities in my current role.
7. I have the skills necessary to implement the Healthy Schools Act in my current role.
8. I have the knowledge necessary to implement the Healthy Schools Act in my current role.
9. I have received adequate training to implement the Healthy Schools Act in my current role.
10. I have received adequate on-the-job support to implement the Healthy Schools Act in my current role.
11. I have adequate time to implement the Healthy Schools Act in my current role.
12. I have adequate resources to implement the Healthy Schools Act in my current role.

The following questions ask about your perceptions about how the Healthy Schools Act is implemented at your school.[2]

13. At my school, members of the school leadership are actively involved in Healthy Schools Act implementation.
14. At my school, we take a team approach to Healthy Schools Act implementation.
15. At my school, we have a plan to implement the Healthy Schools Act that is tailored to our particular needs.
16. The Healthy Schools Act is well-aligned with my school's mission.
17. At my school, we have adequate funds to implement the Healthy Schools Act.

The following questions ask about your perceptions about the support that OSSE provides schools to implement the Healthy Schools Act.[3]

18. OSSE's expectations for Healthy Schools Act implementation in schools are clear.
19. OSSE provides adequate training for schools to implement the Healthy Schools Act.
20. OSSE provides clear and timely information about relevant resources, such as trainings or funding opportunities, to support schools.
21. OSSE distributes Healthy Schools Act-related resources to schools in a fair and consistent manner.
22. OSSE facilitates networking among schools to promote better Healthy Schools Act implementation.
23. OSSE provides schools with feedback on Healthy Schools Act implementation that is useful for assessing priorities.

[1] Items 5 to 12 make up the scale of respondent's personal experience and preparation with the HSA (Cronbach's alpha = 0.942).
[2] Items 13 to 17 make up the scale of HSA implementation at respondent's school (Cronbach's alpha = 0.857).
[3] Items 18 to 25 make up the scale of respondent's perception of OSSE support for HSA implementation (Cronbach's alpha = 0.965).

24. OSSE provides schools with feedback on Healthy Schools Act implementation that is useful for making improvements.

25. The Healthy Schools Act School Health Profiles collected by OSSE provide actionable data that is valued by teachers.

The following questions ask about your opinion of the Healthy Schools Act.

26. What's the one thing that OSSE could do to change the Healthy Schools Act that would improve its implementation at your school? **[OPEN TEXT FIELD]**

27. Please describe your overall experience with the Healthy Schools Act. Include your opinions on its best attributes and areas of improvement. **[OPEN TEXT FIELD]**

28. Please select any processes and programs that have been successfully incorporated in your school as a result of the Healthy Schools Act. *Select all that apply* **[MULTIPLE SELECTION MULTIPLE CHOICE]**

    a. Environmental Literacy Leadership Cadre

    b. Farm to School

    c. Growing Healthy Schools Month

    d. Healthy Schools Act Booklist

    e. Healthy Youth and Schools Commission Subcommittees

    f. Improved nutrition services

    g. Increased health education

    h. Increased physical education

    i. Strawberries and Salad Greens Day

    j. Wellness Council

    k. Other: _____ **[OPEN TEXT FIELD, REQUIRED IF OTHER IS SELECTED]**

    l. None

29. Which, if any, of the topics below would you like to see included/expanded in the Healthy Schools Act?? *Select all that apply* **[MULTIPLE SELECTION MULTIPLE CHOICE]**

    a. Environmental health (e.g. indoor air quality, integrated pest management, testing for lead and bacteria in the water)

    b. Green cleaning (e.g. the use of environmentally friendly products)

    c. Mental health

    d. School climate

    e. Other: _____ **[OPEN TEXT FIELD, REQUIRED IF OTHER IS SELECTED]**

30. Is there anything else you would like to share about your experience with the Healthy Schools Act at your school? **[OPEN TEXT FIELD, REQUIRED IF OTHER IS SELECTED]**

[SUBMIT BUTTON]

Text for next page:

Thank you for completing the survey. Would you be willing to be contacted by Child Trends about participating in a brief phone interview before the school year ends? The purpose of the interview would be to find out more information about your experiences with the Healthy Schools Act. If yes, you will be taken to a page to enter your contact information, which will not be linked to your survey responses.

__ Yes, I am willing to be contacted with more information about a phone interview.

__ No, please do not contact me about a phone interview.

Appendix B: School Staff Interview Questions

First, I'd like to discuss your role at school and with the Healthy Schools Act.

1. Please describe your understanding of the Healthy Schools Act.

2. How would you describe your role in implementing the Healthy Schools Act? What successes or challenges have you experienced in that role?

Next, I want to ask you about the school's role in implementing the Healthy Schools Act.

3. Based on your understanding, describe your school's approach to implementing the Healthy Schools Act. Does this approach fit the needs or mission of your school?

4. How does your school support school staff in implementing the Healthy Schools Act?

5. Overall, how could the school improve Healthy Schools Act implementation?

Finally, I want to ask you about OSSE's role in implementing the Healthy Schools Act.

6. What resources, supports, or feedback has OSSE provided to schools to assist with Healthy Schools Act implementation?

7. How could OSSE better support schools in Healthy Schools Act implementation?

Those are all the questions that I have for you.

8. Is there anything else you would like to share about your experience with the Healthy Schools Act?

Appendix C: OSSE Staff Focus Group Questions

Rapport-building

I'd first like to learn about the personal experiences that each of you has had with the Healthy Schools Act. In a moment, we will talk about the role of OSSE as a whole, but, for now, let's focus on your own roles.

1. Let's go around the room so that you can each briefly describe your role and how it fits into Healthy Schools Act implementation and monitoring efforts.
2. When you first started working in your current roles, how did you learn about the Healthy Schools Act and its history?
    a. What, if anything, were the key things you learned?
3. What successes or challenges have you experienced in these roles, if any?

OSSE's and schools' roles in Healthy Schools Act implementation

Now I'd like to talk more broadly about OSSE's role in overall Healthy Schools Act implementation efforts.

4. In your own words, how would you describe OSSE's role in supporting and monitoring implementation of the Healthy Schools Act?
5. In what ways, if at all, does OSSE support you as a staff member in your role with regard to supporting and monitoring implementation of the Healthy Schools Act?
    a. What kinds of supports, if any, have you found the most helpful from OSSE?
    b. In what ways, if any, do you feel OSSE could better support you in your role?
6. Based on your understanding of the Healthy Schools Act, what are the responsibilities that schools and LEAs have with regard to implementation of the Act?
7. What, if any, resources, supports, or feedback has OSSE provided to schools to assist with Healthy Schools Act implementation?
8. If you have one, please describe an example of a time when OSSE and one or more schools or LEAs worked together on an initiative related to Healthy Schools Act implementation.

    PROBES IF NEEDED:

    a. What was the role of OSSE in this process? The LEA? The school? School staff?
    b. What, if any resources, supports, or feedback did OSSE provide to the school or LEA?
    c. How, if at all, did the school or LEA support school staff in implementing the Healthy Schools Act?
    d. How, if at all, was that initiative related to the needs or priorities of that school or LEA?
    e. How would you describe the outcome of that initiative?
        i. What led you to think that, or what indicated to you that the initiative had produced this outcome?

ii. What do you think was the most important factor influencing that outcome?

Overall Healthy Schools Act implementation, successes, and opportunities for improvement

Now, I'd like to take the conversation in a slightly different direction and talk about the Healthy Schools Act in general.

9. Please describe strategies that you have seen schools or LEAs use to implement the Healthy Schools Act.
    a. Which, if any, do you think have been the most successful? The least successful? Why do you think that?

        PROBES IF NEEDED:

        - Environmental Literacy Leadership Cadre
        - Farm to School
        - Growing Healthy Schools Month
        - Healthy Schools Act Booklist
        - Healthy Youth and Schools Commission Subcommittees
        - Improved nutrition services
        - Increased health education
        - Increased physical education
        - Strawberries and Salad Greens Day
        - Wellness Council

10. Have there been any significant successes of the Healthy Schools Act so far?
    a. Are there things you think OSSE has done well? What do you think made those things successful?

        PROBES IF NEEDED:

        - Setting clear expectations
        - Providing adequate training
        - Supplying schools with Healthy Schools Act-related resources
        - Facilitating networking among schools
        - Providing schools with helpful feedback
        - Collecting and sharing School Health Profile data

    b. What, if anything, are some things you think schools have done well?

11. Have there been any challenges to successful implementation of the Healthy Schools Act so far?

a. How, if at all, have any supports OSSE provides you affected successful implementation of the Healthy Schools Act so far?

12. Are there any changes you would like to see made to improve Healthy Schools Act implementation?

    a. Is there anything schools or LEAs could do to improve Healthy Schools Act implementation?

    b. Is there anything OSSE could do to better support schools in Healthy Schools Act implementation?

    c. What, if any, changes would you make to the Healthy Schools Act itself?

        i. What topics, if any, would you like to see included/expanded in the Healthy Schools Act? Why?

PROBES IF NEEDED:

- Environmental health (e.g. indoor air quality, integrated pest management, testing for lead and bacteria in the water)
- Green cleaning (e.g. the use of environmentally friendly products)
- Mental health
- School climate

Wrap-up

Before we end, I want to give you an opportunity to share any last thoughts you might have.

13. Is there anything else you would like to share about your experience with the Healthy Schools Act or perspectives about its implementation?

Appendix D: HYSC Commission Focus Group Questions

Rapport-building

I'd first like to learn about the personal experiences that each of you has had with the Healthy Schools Act. In a moment, we will talk about the role of the commission as a whole, but, for now, let's focus on your own roles.

1. Before I hear about your experiences with the Healthy School Act, let's just start by each of you sharing what your profession is and your area of expertise, and your role in the Healthy Schools Act implementation and monitoring efforts?

2. How did you become a part of the Commission?

    a. How did you come to understand the Healthy Schools Act and its history and goals?

3. I'm interested in learning about the successes and challenges you all have experienced in your roles we just discussed. Could you share a bit about these?

HYSC's and OSSE's role in Healthy Schools Act implementation

Now I'd like to talk more broadly about the Commission's role in overall Healthy Schools Act implementation and monitoring efforts.

4. In your own words, how would you describe the Commission's role with regard to implementation and monitoring of the Healthy Schools Act?

    a. I'm interested in hearing a bit about some of the successes, as well as the challenges, that you believe that the Commission has had in terms of implementing and monitoring this act. Why don't we begin by talking about successes?

    Thank you. Now what about any challenges?

    b. What, if any, other functions do you believe might be useful for the Commission to take on with respect to the Healthy Schools Act?

    c. [PROBE on functions mentioned as they come up]: Can you help me understand the reasons that these additional functions might be useful?

    d. [PROBE on challenges that prevent the implementation of these additional functions]: Can you share your thoughts on any existing barriers that may make it more challenging to implement these additional functions?

5. That information was very helpful. Thank you. I'd like to shift now to talk a bit about the relationship between the commission and OSSE related to the implementation and monitoring of the Healthy Schools Act.

    a. Let's begin by talking about collaboration between the Commission and OSSE. In your own words, how would you describe OSSE's role with regard to implementation and monitoring of the Healthy Schools Act?

    b. Are there ways in which the Commission and OSSE work together to ensure alignment of community and school efforts in promoting health, nutrition, and wellness?

c. Are there ways in which OSSE seeks guidance from the Commission around implementation of the Healthy Schools Act? [PROBE on ways mentioned by group members: Tell me more about that. About how often does that occur?]

d. Does the Commission receive information from OSSE about the progress of HSA implementation in schools? [PROBE on answers: Can you describe more about that? And, how often would you say this occurs?]

e. Possibly include: What, if anything, do you think would improve collaboration between the Commission and OSSE? [PROBE on answers: Can you describe more about that? What would be needed to make this a reality?]

6. To date, has the Commission shared any feedback or resources with OSSE related to Healthy Schools Act implementation? If so, what has been shared?

Overall Healthy Schools Act implementation, successes, and opportunities for improvement

Now, I'd like to take the conversation in a slightly different direction and talk about the Healthy Schools Act in general.

7. Are there any structures and supports within the community to support HSA implementation?

    a. Do you think additional structures and supports are needed in the community? [PROBE: Can you talk more about those?]

8. I'm interested in learning more about how OSSE supports the implementation of the Healthy Schools Act.

    a. What strategies has OSSE used that you think have been successful or unsuccessful?[PROBE on each: Why is that? Can you say more?]

9. Overall, how well do you think the Healthy Schools Act is being implemented in schools? Why?

10. I'm interested to learn from you all about any recommendations that the Commission has made and that have been successfully taken up by OSSE. What were they?

11. Earlier, we talked about the Commission's successes around implementation and monitoring. I'm also interested to get your opinions about success of the Healthy Schools Act broadly.

    a. How does the Commission define success for the Healthy Schools Act?

    b. Can you share some specific examples of success that have been achieved so far?

        PROBES IF NEEDED:

        - Providing OSSE feedback or input on specific issues
        - Identifying gaps and providing recommendations to the Mayor
        - Setting an agenda for the Mayor
        - Supplying OSSE with resources and supports from the community

    c. Are there things you think OSSE has done well?

d. To your knowledge, are there any processes or programs that have been successfully incorporated in schools as a result of the Healthy Schools Act?

PROBES IF NEEDED:

Can you say something about …

- Environmental Literacy Leadership Cadre
- Farm to School
- Growing Healthy Schools Month
- Healthy Schools Act Booklist
- Healthy Youth and Schools Commission Subcommittees
- Improved nutrition services
- Increased health education
- Increased physical education
- Strawberries and Salad Greens Day
- Wellness Council

12. What, if any, improvements would you like to see made to Healthy Schools Act implementation?

a. Is there anything the Commission could do to better support OSSE in Healthy Schools Act implementation?

b. Is there anything OSSE could do to improve Healthy Schools Act implementation?

c. Are there any changes you would like to see made to the Healthy Schools Act itself?

i. Are there any additional topics you would like to see included/expanded in the Healthy Schools Act (for example, environmental health, green cleaning, mental health, school climate)? Why?

PROBES IF NEEDED:

- Environmental health (e.g. indoor air quality, integrated pest management, testing for lead and bacteria in the water)
- Green cleaning (e.g. the use of environmentally friendly products)
- Mental health
- School climate

Wrap-up

Before we end, I want to give you an opportunity to share any last thoughts you might have.

13. Is there anything else you would like to share about your experience with the Healthy Schools Act or perspectives about its implementation?

APPENDIX E: Methods

This section describes the methods for collecting and analyzing the primary data from school staff, OSSE staff, and members of the Healthy Youth and Schools Commission.

Sample Selection

Quantitative data

Quantitative data from school staff were collected via an online survey. An invitation was distributed to schools on May 18th and June 1st via OSSE's *LEA Look Forward*, a weekly digest that is distributed to all LEAs in the District of Columbia. A total of 58 respondents submitted a complete survey, representing 49 schools. One respondent endorsed a role as a central office staff for a charter school; since the responses could not be associated with a particular school, that respondent was dropped from analyses. Among the 49 schools represented in the sample, six submitted surveys from multiple respondents. For schools with multiple respondents, one respondent was selected from each school to be included in the final sample.[1] Ultimately, the analytic sample for the staff survey was made up of 49 staff members. While this represents approximately 20 percent of schools, the distribution of sector and level closely mirror the distribution of schools in the District of Columbia as a whole. Of note, while OSSE records indicate that 57 percent of schools received at least one grant in 2015-16, only one in three survey respondents indicated that their school was a grant recipient.

Qualitative data

The final question in the staff survey asked respondents if they would be willing to be contacted by Child Trends staff about participating in a brief phone interview to expand on their survey responses. Thirteen respondents indicated a willingness to be contacted about a phone interview and were redirected to a brief form in which they were asked to provide contact information including their name, phone number, email address, and the best time to reach them. 10 respondents were successfully contacted – three respondents provided email addresses that did not work – and five staff ultimately participated in an interview. The five school staff who participated in telephone interviews held a range of different positions in their schools, which were a mix of public (n=2) and public charter school (n=3) as well as elementary (n=3), middle (n=1), and middle/high schools (n=1). Prior to the interviews, participants were emailed a consent form and during the call verbal consent was obtained. Staff were offered school supplies as a token of appreciation for their participation in the interviews.

Two focus groups were also conducted, one with OSSE staff members who work on initiatives related to the HSA, and one with members of the Healthy Youth and Schools Commission (HYSC). Recruitment and scheduling for these focus groups was conducted by OSSE. Prior to the focus groups, participants were informed about the study and written consent was obtained. A total of eight OSSE staff members who work on Healthy Schools Act-related initiatives and five members of the Healthy Youth and Schools Commission participated in the focus groups.

Data Collection

Quantitative data

The school staff survey consisted of 30 questions that asked respondents about their background and experiences with the Healthy Schools Act. Background information included the respondent's role, the school they work at, their understanding of whether their school was a current recipient of HSA-related grants, and the HSA-related activities in which they were directly involved. Respondents were asked to provide information on their experiences

[1] To select the respondent to be included in the final sample, respondents from each of the six schools were assigned priorities based on the number of skipped survey items and their position at the school. Those with the most completed survey items were given priority, followed by those working in administrative positions. If two or more respondents from one school were tied based on these criteria, one was randomly selected to be included in the analytic sample.

with and perceptions of the HSA via three sets of questions focusing on their personal experiences with the HSA, their perceptions about how the HSA is implemented at their school, and their perceptions about the support OSSE provides schools to implement the HSA. Responses for these sets of questions were on a 5-point Likert scale ranging from "Strongly Disagree" to "Strongly Agree." Respondents were also asked to indicate which programs or practices were successfully incorporated into their school as a result of the HSA and what topics they would like to see expanded in the HSA (see Appendix A for the full survey).

Qualitative data

Qualitative data were collected through survey questions, telephone interviews, and focus group conversations. The online survey included three open-ended questions asking respondents to describe: their understanding of the HSA, their experiences with implementing the HSA, and potential areas for improvement. The telephone interviews conducted with school staff lasted about 15 to 30 minutes each and mainly focused on the participant's role at school and in implementing the HSA, their school's role in implementing the HSA, and OSSE's role in supporting implementation of the HSA (see Appendix C for the full protocol). A trained Child Trends staff member conducted each interview and a research assistant served as notetaker. Interviews were also audio-recorded.

Likewise, each focus group had one facilitator and one notetaker (see Appendices C and D for the full protocols). The focus groups were audio-recorded and lasted between 90 minutes and two hours. The main topics discussed in the focus groups were the role that OSSE and the Healthy Youth and Schools Commission play in supporting implementation of the HSA. Focus group participants also discussed their schools' roles in implementation of the HSA; overall implementation of the HSA; and successes thus far and opportunities for improvement in implementation.

Data Analysis

Quantitative data

Quantitative data from the staff survey were analyzed using Stata 13.[2] Respondents were assigned one of three broad roles (administrative, health or PE teacher, and other instructor) based on their stated title. The three sets of questions described above demonstrated strong internal consistency, and scales were generated for each. Additionally, three indices were generated by summing: HSA-related programs, activities, or policies with which respondents reported being directly involved; HSA-related programs, activities, or policies in which their school participated; and the total recommendations they made for improving the HSA. Descriptive statistics were run on each variable to calculate frequencies for each response category. Correlations between variables were examined using bivariate linear or logistic regressions, with the respondent's school type (charter or DCPS), school's HSA grant receipt status, and respondent role serving as the main independent variables of interest. Relationships with a p-value of $\leq$.05 were considered significant. The six scales and indices, as well as the individual items making them up, served as the dependent variables in regression analyses. The scales and indices, plus the items making them up, are presented in Tables E.1. and E.2. below.

Because a large proportion of respondents selected the neutral response option throughout the survey, we examined the responses of these respondents in more detail to try and better understand how those responses could be interpreted. In order to do this we followed a three-step process. First, we identified the individuals with a neutral response for each survey question. Second, we reviewed these individuals' responses to two open-ended survey questions about their overall experiences with the HSA and classified responses within six categories: positive, negative, a mixed response that was included both positive and negative aspects (e.g., "Its a great idea in theory, but its full implementation amongst schools will be a very long and tedious ordeal."), neutral, indication that respondent

[2] StataCorp. (2013). *Stata Statistical Software: Release 13*. College Station, TX: StataCorp LP.

lacked information, no comment. Third, we reviewed the proportion of comments from the open ended questions that fell into the five categories described above to provide additional context to the neutral survey responses. We excluded the "no comment" comments, which was the majority of comments, and focused on the responses that fell into the other five categories. For some items, there was no discernable pattern as respondents that selected the neutral response option offered a range of perspectives in the open ended comments about their overall experiences with the HSA. For other items, however, a clearer pattern emerged with most comments falling into one of the five categories.

Table E.1. Staff experiences with the Healthy Schools Act scales

Staff's personal understanding of and preparation for implementing the Healthy Schools Act
• I have a clear understanding of what is covered in the Healthy Schools Act. • I have a clear understanding of how the Healthy Schools Act affects my responsibilities in my current role. • I have the skills necessary to implement the Healthy Schools Act in my current role. • I have the knowledge necessary to implement the Healthy Schools Act in my current role. • I have received adequate training to implement the Healthy Schools Act in my current role. • I have received adequate on-the-job support to implement the Healthy Schools Act in my current role. • I have adequate time to implement the Healthy Schools Act in my current role. • I have adequate resources to implement the Healthy Schools Act in my current role. Cronbach's alpha: 0.94
Staff's perceptions of their school's implementation of the Healthy Schools Act
• At my school, members of the school leadership are actively involved in Healthy Schools Act implementation. • At my school, we take a team approach to Healthy Schools Act implementation. • At my school, we have a plan to implement the Healthy Schools Act that is tailored to our particular needs. • The Healthy Schools Act is well-aligned with my school's mission. • At my school, we have adequate funds to implement the Healthy Schools Act. Cronbach's alpha: 0.86
Staff's perceptions of OSSE's support for implementation of the Healthy Schools Act
• OSSE's expectations for Healthy Schools Act implementation in schools are clear. • OSSE provides adequate training for schools to implement the Healthy Schools Act. • OSSE provides clear and timely information about relevant resources, such as trainings or funding opportunities, to support schools. • OSSE distributes Healthy Schools Act-related resources to schools in a fair and consistent manner. • OSSE facilitates networking among schools to promote better Healthy Schools Act implementation. • OSSE provides schools with feedback on Healthy Schools Act implementation that is useful for assessing priorities. • OSSE provides schools with feedback on Healthy Schools Act implementation that is useful for making improvements. • The Healthy Schools Act School Health Profiles collected by OSSE provide actionable data that is valued by teachers. Cronbach's alpha: 0.97

Table E.2. Reported Healthy Schools Act-related activities, processes, and programs indices[11]

Staff is directly involved in the following Healthy Schools Act-related activities.
• Environmental Literacy Leadership Cadre
• Farm to School
• Growing Healthy Schools Month
• Healthy Schools Act Booklist
• Healthy Youth and Schools Commission Subcommittees
• Strawberries and Salad Greens Day
• Wellness Council
• Other
Processes and programs that have been successfully incorporated into staff's school due to Healthy Schools Act
• Environmental Literacy Leadership Cadre
• Farm to School
• Growing Healthy Schools Month
• Healthy Schools Act Booklist
• Healthy Youth and Schools Commission Subcommittees
• Strawberries and Salad Greens Day
• Wellness Council
• Other
Topics staff would like to see included or expanded in the Healthy Schools Act
• Environmental health
• Green cleaning
• Mental health
• School climate
• Other

[11] The survey questions these indices were derived from allowed respondents to select multiple options, and also provided an option for "none."

Qualitative data

Notes from the two focus groups with OSSE staff and members of the Healthy Youth and Schools Commission and all staff phone interviews were imported into NVivo 10[3] along with a spreadsheet that included all responses from the staff surveys. All qualitative data was coded according to a set of codes determined *a priori*. Broadly, these codes included attitudes, experiences with implementation, whom the HSA has affected, and various aspects of the HSA and its implementation, as well as codes that indicated whether a comment seemed positive or negative. Child Trends conducted queries on these codes to draw out themes and common attitudes related to the HSA and its implementation from those who participated in qualitative data collection activities. Additionally, queries were run with respondents as the unit of analysis to calculate the frequency of particular themes.

[3] QSR International Pty Ltd. (2012). NVivo Qualitative Data Analysis Software Version 10. Doncaster, Australia: QSR International Pty Ltd.